ENGINEERING NEWS-RECORD

Plougastel Bridge span demolished by Nazis in Battle for France — See p. 5.

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Conveyors that helped change the face of the earth . . .

More than 12,000,000 tons of sand and gravel moved in four years — that's the record of the Shasta conveyor system, driven by G-E motors

By:

R. F. EMERSON

Industrial Engineering Divisions

General Electric Company

WHEN plans for Shasta Dam were under way, it was found that the gravel bank where aggregate for the concrete was to be obtained was more than 17 miles away by normal transportation. The Kaiser-sponsored Columbia Construction Company, Inc., supplier of the aggregate, chose a 36-inch belt conveyor system as the most economical way to assure a steady flow of sand and gravel to the delivery hopper at Coram. It was the longest belt sequence installation attempted by the Goodyear Tire and Rubber Company up to that time—9.6 miles . . . 26 flights, varying from 850 to 3240 feet in length . . . lengths varying inversely with the grades which ranged up to 25 per cent . . . one motor for each length.

Motors were to run 20 hours out of every 24, moving 1000 tons per hour, at 550 fpm. This they did—for four years—until the dam was finished.

In selecting the motors, consideration was given not only to size and type of motor, but also to the necessity for smooth starts, correct speed control, and over-all dependability to keep the belts moving without strain and break-downs.

The motors chosen were 200-hp wound-rotor G-E motors. They were centrally controlled by G-E equipment from the receiving end at Coram. Whenever the switch was thrown, the first motor started the nearest belt, without strain, and thereafter the others started in sequence. The last conveyor to start was the one at Redding—where the aggregate was loaded. Motor controls were interconnected to automatically stop all flights between any stoppage and the gravel pit.

On the downgrade flights, the motors had automatic spring-set, power-released G-E thruster brakes to prevent a power failure from causing the load on the belt to pile up and spill at the bottom of the grade. Several of the downgrade belts regenerated power when the conveyor was in operation, and this power was used to help run the belts which carried material up grade. No major failures in the belt system were ever reported. Constant checking of the entire installation—as it rolled above creeks, highways, a railroad, and the Sacramento River—kept the aggregate (over 12,000,000 tons in all) moving to the dam.

G-E engineers have wide experience in conveyor operations. They have planned installations of motors and control for the H. C. Frick Company's Colonial Mines, for the Oliver Iron Mining Company, for the conveyors at Denny Hill in Seattle, for Grand Coulee Dam and for many other construction and earth-moving projects. If you have a project where the experience and skill of G-E engineers can be of help, we should like to work with you. General Electric Company, Schenectady 5, N. Y.

BUY WAR BONDS as your stake in America's future

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Senate committee approves Mexican water treaty

New treaty characterized as desirable, as improving international relations, and as an equitable settlement of long-standing controversies

After a month devoted to hearings, the Senate Foreign Relations Committee last week voted 18 to 4 in favor of ratification of the United States-Mexican treaty for control and distribution of water from the Rio Grande, Colorado and Tijuana rivers (*ENR*, Jan. 25, vol. 123). In a 71-page report, the committee recommends to the Senate that the treaty be approved without changes.

Colorado River water

In discussion of the controversial question as to how much water ultimately will be available to Mexico in the Colorado River at the international boundary, the committee states: "Engineers of the Bureau of Reclamation and the American Section of the Boundary Commission estimate that, when full development has been reached in the United States, these return flows will be not less than 900,000 acre-ft. a year, and perhaps as much as 1,125,000 acre-ft. a year, thus limiting the draft on what might be called firm water upstream to a quantity somewhat less than 600,000 acre-ft. a year, and perhaps as little as 375,000 acre-ft. While the California witnesses have testified that they believe these estimates of return flow to be too high, the committee believes that greater weight should be given the estimates of the federal agencies who have made long and careful studies of this problem and who are considered to be disinterested witnesses. According to all the testimony, the average annual virgin run-off from the Colorado River basin is approximately 18,000,000 acre-ft. a year." The return flow referred to in this statement is water that finds its way back into the river from irrigated areas.

The report continues: "The amount allocated to Mexico is thus only about 7 percent of the total supply, and the amount of firm water—that is, water which must be released from storage at Davis Dam—which will ultimately be required, in addition to return flows which will be in the river in any event, is only 3 percent or less of the total annual supply. The balance remaining for use in the United States, or approximately 16,500,000 acre-ft. on the average, will permit of a total development in the United States almost treble the present development. That is to say, the United States is now using only a little over a third of the water which is made available for use under the treaty. Mexico, on the other hand, is now using approximately 1,800,000 acre-ft. a year, and in the meantime some 8,000,000 or 9,000,000 acre-ft. of water flows through Mexican territory and wastes unused into the Gulf of California. The testimony is that it will be many years hence before this water can all be put to beneficial use in the United States. If and when that time arrives, present Mexican uses must be curtailed. Thus, by placing for all time a limit, measurably below present Mexican diversions, upon the obligation of the United States to supply Colorado River water to Mexico, the treaty provides needed assurance to American agencies and communities in planning future developments."

Treaty declared clear

California representatives had claimed that in accordance with the language of the treaty the amount of water Mexico would obtain was not clearly defined. In regards to this point the report states: "The committee is unqualifiedly of the opinion that the language of Article 10 and 11 of the treaty is clear and subject to no other construction than that, first, the 1,700,000 acre-ft. of water referred to in subparagraph B of Article 10 includes and is not in addition to the 1,500,000 acre-ft. of water the delivery of which is guaranteed under Subparagraph A thereof; second, that under the provisions of this article, Mexico can ac-

(*Continued on page* 2)

Surplus equipment brings good prices

In a 2-day sale at Kearney, Neb., Feb. 21-22, the Kansas City office of the Treasury Procurement Division disposed of 1,189 pieces of surplus construction and farm equipment for a total of $500,000.

Almost every type of construction machinery was included in the sale. In general the units were in poor condition, made up largely of items returned from the Alcan and Canol projects in Canada and Alaska, including some of the old CCC and WPA equipment sent there by the Public Roads Administration. About ten percent of the total could be classed as good and usable. The remainder was made up mostly of machinery already combed over and regarded as not fit for salvage and rebuilding for Army use.

Despite the relatively poor condition of the equipment, prices were high, with emphasis placed on anything that included an engine or tires. Few items designed for pneumatic tires were equipped with a full set. Many units, such as scrapers and wagons, were resting on their axles. Prices ranged from $5 for a revolving screen to $10,055 for a fully-equipped 1½-yd. crawler shovel of 1936 vintage. Only in a few instances did bids exceed OPA ceiling prices established on the spot for those machines in good enough shape to call for a ceiling price. In such cases the items were awarded at a maximum allowable sum to a bidder chosen by lot.

Bidding was by card system, with only the high figure and name of the successful buyer made public by loudspeaker announcement. Some 350 dealers and distributors were registered as qualified to bid. A total of 1,500 persons attended the sale, taxing the hotel capacity of all central Nebraska.

A general description of the sale and selling procedure will be published in a forthcoming article.

quire no right to any quantity of water beyond the 1,500,000 acre-ft. referred to in Subparagraph A of that article other than the right to use such additional water as might otherwise be present in the river, without any additional obligations on the part of the United States, and other than the right to use not in excess an additional 200,000 acre-ft. of water to be delivered according to schedule if and when the United States authorities (not Mexico) decide that there exists a surplus of water in excess of the amount necessary to supply users of the United States and the guaranteed quantity of 1,500,000 acre-ft. annually to Mexico; and, third, that the quantities allotted to Mexico under Article 10 may be composed of any waters of the Colorado from any and all sources and whatever their origin. The committee is firmly of the opinion that the language of these two articles is clear and that there can be no occasion for any misunderstanding with respect to their meaning or application."

Commission's powers limited

California representatives had also testified that they were against the treaty because the American Section of the commission controlling distribution of the water of the two streams would have too much power. In regard to this point the committee decided as follows: "Some question has arisen as to whether the jurisdiction and functions of the American Section might not encroach upon those of other federal agencies of this government. To set this matter at rest, the protocol to the treaty confines the jurisdiction of the commission and its two sections to works on or along the boundary and to those to be devoted exclusively to the performance of treaty functions, each section within its own country. As to all other works within the United States, even though they may be used in part for the discharge of treaty function, they remain under the exclusive jurisdiction of those federal agencies which now or hereafter may be vested by domestic law with such jurisdiction and control."

International comity advanced

The committee concluded: "The treaty is of great importance in the administration of our foreign affairs. The question of the equitable division of waters of the international streams has been a sore spot in our relations with Mexico that has plagued the two nations for half a century. It is one of the few matters of major importance still pending between them. It should be borne in mind that the rights and obligations of the two countries in the international streams are mutual and reciprocal, not merely unilateral. The treaty does not give away any natural resource. It simply recognizes these mutual rights and obligations. In so doing, it not only sets at rest the fears and uncertainties which are the source of misunderstanding and bitterness in the great river basins in both countries but also allows development to proceed in an orderly manner and on a firm basis. Opportunity is afforded for a tremendous expansion in the basins of the Rio Grande and the Colorado River in the United States and for the development of worthwhile projects of first magnitude. Of equal importance, the treaty will remove an ever-increasing threat to friendly relations between the United States and Mexico."

Action in the Senate

Action on the treaty by the Senate as a whole is not expected until after the Inter-American Conference now underway in Mexico ends, or in about three weeks. The fact that the Senate Foreign Relations Committee recommended approval of the treaty does not mean that its ratification is assured. A two-thirds vote will be necessary, and the California and Nevada representatives will make a hard fight against ratification. Nevertheless, proponents of the treaty have won the first battle and approval eventually is expected.

Concrete barges are South Pacific refrigerators

One of the three 265-ft. long, 48-ft. beam concrete barges built by Concrete Ship Constructors at National City, Calif., which are serving as refrigerated warehouses for troops in the hot spots of the Pacific. Insulated with glass fibers, the eight holds of the barges can accommodate 1,000 tons of refrigerated cargo and keep it at temperatures of from 10 to 15 deg. F. The barges move with the "front", serving as storage units until installations can be made ashore. Then they are towed ahead to new landings.

Other refrigeration is provided by prefabricated steel barges 104 x 29 ft., shipped "knocked-down" to forward areas, then assembled and insulated to provide storage for 400 tons at 10 deg. F. The barges all are equipped to make ice cream.

• • •

Kaiser cement plant to be moved to Colombia

Sale by the Henry J. Kaiser interests of the recently acquired Yosemite Portland Cement Co. at Merced, Calif., to Empresa Siderurgica Co. of Colombia has been announced. All movable equipment, materials and buildings, amounting to about 6,000 tons, will be dismantled and shipped to South America where the plant will be set up 300 miles inland in Colombia, according to W. P. Scott of Oakland, who will supervise the shipping. Lots probably weighing 400 to 500 tons will be sent when shipping space is available, Mr. Scott said.

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Congress passes $382,000,000 rivers and harbors legislation

Measure approves 291 projects, including 10 war jobs, and brings authorized work for Corps of Engineers to over 4 billion dollars

With little debate last Thursday the use passed a rivers and harbors bill horizing 291 projects expected to $382,000,000. Late in January NR Feb. 1, 1945 vol. p. 155) the ate passed an identical bill (S. 35), since the measure is free of con-versial items the President is ex-ted to add his approval, which uld make it the first rivers and har-s act since 1938.

Bill has two objectives

Congress acted on the bill at this e for two reasons; first, to enlarge program of postwar public works which the Corps of Engineers is horized to make plans, and second, authorize several projects on which nstruction may be carried out as part the war effort. This latter work is pected to cost over $13,250,000 and nsists of the following projects: Bal-more, Md., Harbor (Curtis Creek), 50,000; St. Joseph Bay, Fla., $225,-0; Mobile, Ala., Harbor (Chickasaw eek), $475,000; Sabine-Neches aterway in Texas, $45,000; a harbor refuge at Port Lavaca, Texas, $120,-0; a locked canal along east side Mississippi River at Chain of Rocks ove St. Louis, Mo., $10,290,000; im-rovement of St. Mary's River in region Sault Ste. Marie locks, $1,412,000; Clair River, Mich., $135,000; San blo Bay and Mare Island Strait, lif., $7,600; and Ponce Harbor, P. $400,000.

Appropriations must be made for is work before it can start.

Postwar projects

No appropriations for the other 281 ojects approved will be permitted til war conditions permit construc-n on a large scale to be resumed. his work includes: Improvement of e Intracoastal Waterway from Jack-nville to Miami, Fla., $11,789,000; a vigation and power development in the abama-Coosa River basin in Alabama, 0,000,000; navigation and power proj-ts on the Neches and Angelina rivers Texas, $23,000,000; similar construc-n on the Trinity River and its tribu-ies in Texas, $15,000,000; improve-nt of the Illinois Waterway, Illinois d Indiana Harbor and Canal, Indiana, 5,900,000; construction of a series of ks and dams to improve navigation on e Snake River in the Pacific North-west, $58,625,000; and construction of McNary Dam, formerly designated Umatilla Dam, on the Columbia River for navigation and power, $49,470,000. In addition 274 projects all costing less than $10,000,000 are authorized.

Controversial projects omitted

Noticeably lacking from the bill are five major controversial items.

These are: A $66,000,000 waterway connecting the Tombigbee and Tennessee rivers; construction of a 12-ft. channel on the Beaver-Mahoning rivers below Youngstown, Ohio, at a cost of $38,500,000; a $25,000,000 improvement on the Santee-Congaree rivers in North Carolina; a $25,000,000 project providing for improvement of the Savannah River and construction of the Clark Hill reservoir in Georgia, and improvements on the Missouri River. The construction work on the Missouri and Savannah rivers, including the Clark Hill Dam, is authorized in the Flood Control Law (Public Law 534) passed by the last Congress.

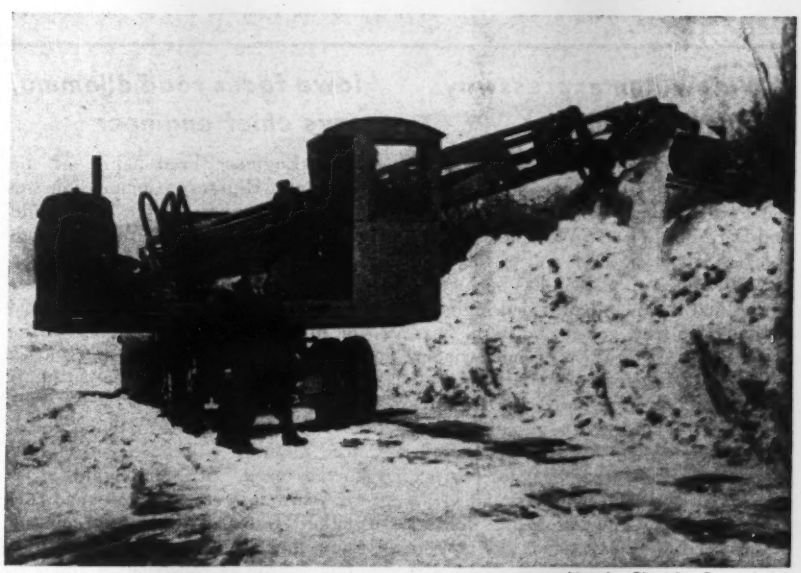
Also missing from the bill is a highly controversial provision exempting the Central Valley project in California from the limit on the size of tract under individual ownership that is in the Reclamation Act. This feature blocked passage by the last Congress.

Will increase backlog

If the President makes the bill a law it will increase to about one-half billion dollars the backlog of rivers and harbors work. At the same time it will increase to over four billion dollars the amount of work authorized to be done by the Corps of Engineers, including flood control and multiple-purpose projects (See *ENR* Jan. 18, 1945, vol. p. 83 for listing of work of this type already approved).

During debate on the bill in the House it was revealed that other rivers and harbors bills are expected to be considered this year.

Water leakage surveys in Boston, Mass., are credited with saving 4,000,000 g.p.d. flow. Geophones and photoflow instruments are used to detect leakage. Total water consumption for the city is 105,000,000 g.p.d.



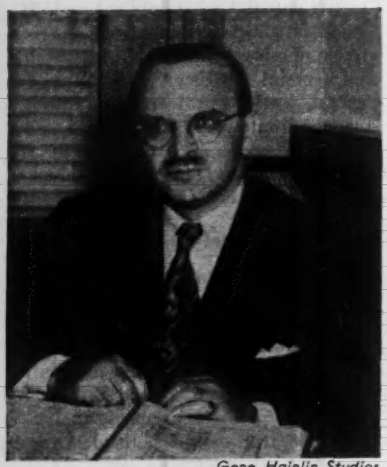
Lincoln Electric Co. photo

Grading and ditching machine moves snow

A hydraulic powered machine built for grading and ditching by Ray Ferwerda of Cleveland has been used to clear traffic lanes of packed snow that defied plows.

The hydraulic-controlled boom has a 13-ft. extension, full circle swing and a 45 deg. roll. It will handle a 1 cu.yd. bucket or will operate with a bulldozer blade that can move snow first from top of a snowpile or can reach over piles to clear at the curb.

The rig may be mounted on any 2½-ton or larger truck and has its own 45-hp. gasoline engine to provide power for dual pumps of 14 and 35 gpm. capacity.



Gene Hainlin Studios

George Havas

K.C.I. photo

Henry J. Kaiser

Gene Hainlin Studios

George W. Vreeland

Kaiser establishes new consulting and construction organization

Formation of Kaiser Engineers, a permanent organization of more than 200 specialists, many of whom were associated with Henry J. Kaiser in the designing and construction of some of the country's largest engineering projects, has been announced by the Oakland, Calif., headquarters of Mr. Kaiser.

The new engineering organization will act in a consulting capacity in making surveys, estimating costs and preparing designs or it will, on request, engage in actual construction. Policy of the new company will be to undertake engineering work in any part of the world.

Mr. Kaiser is president of the organization, with E. E. Trefethen, Jr., vice-president; T. M. Price, vice-president; George Havas, vice-president and general manager; George W. Vreeland, chief consulting engineer, and George B. Scheer, chief consulting electrical engineer. The company includes engineers in most of the major fields of engineering—civil, hydraulic, structural, mechanical, electrical, architectural and metallurgical. An experienced staff will also be available for the work of procurement of materials and equipment.

Of the more than 200 members of the organization many were employed by Mr. Kaiser on such projects as Boulder, Grand Coulee and Bonneville dams; Delaware Aqueduct, the Kaiser steel plant near Fontana, Calif., the Permanente Cement Co. plant near San Jose, Calif.; the carbothermic magnesium plant of The Permanente Metals Corp., and the Kaiser shipyards at Richmond, Calif., Portland, Ore., and Vancouver, Wash.

Willow Run expressway is now completed

Construction work on the Willow Run-Detroit Industrial Expressway between the Ford bomber plant at Willow Run and Detroit, Mich., (*ENR* Jan. 14, 1943, vol. p. 58; Oct. 5, 1944, vol. p. 409, and Oct. 19, 1944, vol. p. 485) has been completed and the 38-mile, divided highway will be open from end to end in the next few weeks, Highway Commissioner Charles M. Ziegler has announced.

Construction work on the expressway, designed to speed manpower and materials to the huge Ford bomber plant from the Detroit area, was started Oct. 17, 1941. The last concrete, under the Rotunda Drive and Michigan Central Railroad grade separations, was poured Feb. 12. It is expected three weeks will be required for properly curing the last section of pavement to be poured, and for clean-up operations necessary before the last section can be opened, linking the expressway with the Detroit city street system at the west limits of the city.

The expressway has been open from Willow Run to Greenfield road since last November.

Iowa faces road dilemma, says chief engineer

Chief Engineer Fred White of the Iowa State Highway Commission recently told members of the Senate and House roads committees, that "secondary road development in Iowa faces a two-horned dilemma" if road-use taxes and federal aid for rural roads continue to be distributed to the counties in the proportion each bears to the state's area.

"If secondary road construction funds are increased to speed up the work in the less advanced counties, the more advanced counties will have more funds than they need," Mr. White said.

He went on to say that new road construction is retarded in many counties because they are using about one million dollars a year of construction funds to maintain present roads.

Counting on federal aid at the present rate, Mr. White said, it will take 19 years to provide an all-weather outlet to all of Iowa's farms. An additional $5,131,000 a year would lessen the time to 15 years if the money could be spent where it is most needed. He suggested an increase of one cent a gallon in the gasoline tax as one source of funds.

Controls on plywood made more stringent

Purchase of softwood plywood under blanket maintenance, repair and operating supplies ratings has been prohibited in order to curtail the use of this critical material for relatively non-essential purposes, the War Production Board has announced. The action was taken by an amendment to Order L-150-a and is expected to conserve an estimated 7,000,000 to 8,000,000 sq. ft. of softwood plywood per month, which has been passing through distributors' hands on blanket MRO ratings.

Production of softwood plywood is at the rate of about 125,000,000 sq. ft. per month, WPB said. Distributors received monthly allocations of approximately 45,000,000 sq. ft. during 1944, but their inventories have declined sharply from 83,764,000 sq. ft., as of Jan. 1, 1944, to 32,000,000 sq. ft. at the beginning of 1945. Because of unusually heavy military demand, at the present time no increase in the amounts allocated to distributors is possible, lumber and lumber products officials said. A wide variety of military items require softwood plywood.

amous long-span concrete arch bridge ear Brest, France, is a war casualty

ermans wreck one of three 612-ft spans of Plougastel Bridge, cond longest of type known to have been constructed

By Waldo G. Bowman
Editor, Engineering News-Record
By air mail from the
European Theater of Operations

ne of the most sensational demoli- s carried out by the Germans in the le of France was the wrecking, here- re unreported in the U. S., of one of three, (12-ft. concrete arch spans of Plougastel Bridge near Brest.

Containing the longest concrete ches in the world when it was built 1930, and still exceeded only by the ently completed Esla River bridge in ain and, perhaps, by a new bridge Sweden, the Plougastel Bridge was object of much engineering discus- n during the period of its design d construction. It included several ovations, subsequently used else- ere, so that its fame rests not alone mere size, but upon the engineering cedents that it established (*ENR* Oct. 1929, vol. p. 691).

Designed by the well-known French gineer, Edouard Freyssinet, the bridge nsists of three arch spans, carrying a uble-story deck, and short lengths of ncrete girder viaduct at each end. De- ned as a combination railway and highway bridge, only the highway deck, on top, carrying a 26-ft. roadway, was utilized. The arch ribs are of hollow cross section, 31.1 ft. wide and 16.5 ft. deep at the maximum section, with the thickness of the slabs increasing toward the abutments to a maximum of 3 ft. Struts are 39.4 ft. apart. Although the truss superstructure is of reinforced concrete, steel reinforcement was used in the arches only because of the possibility of secondary stresses. The arches were designed for a stress of 1,000 lb. per sq. in. for which concrete having an ultimate strength of 8,500 lb. per sq. in. was specified.

Centers floated into place

It will be recalled that the arches were constructed on huge clear-span centers, floated into place, and then supported on special seats fastened to short stubs of the ribs that were built with the piers. The accompanying picture suggests that the short end of the arch broke off at the construction joint formed at the end of this stub.

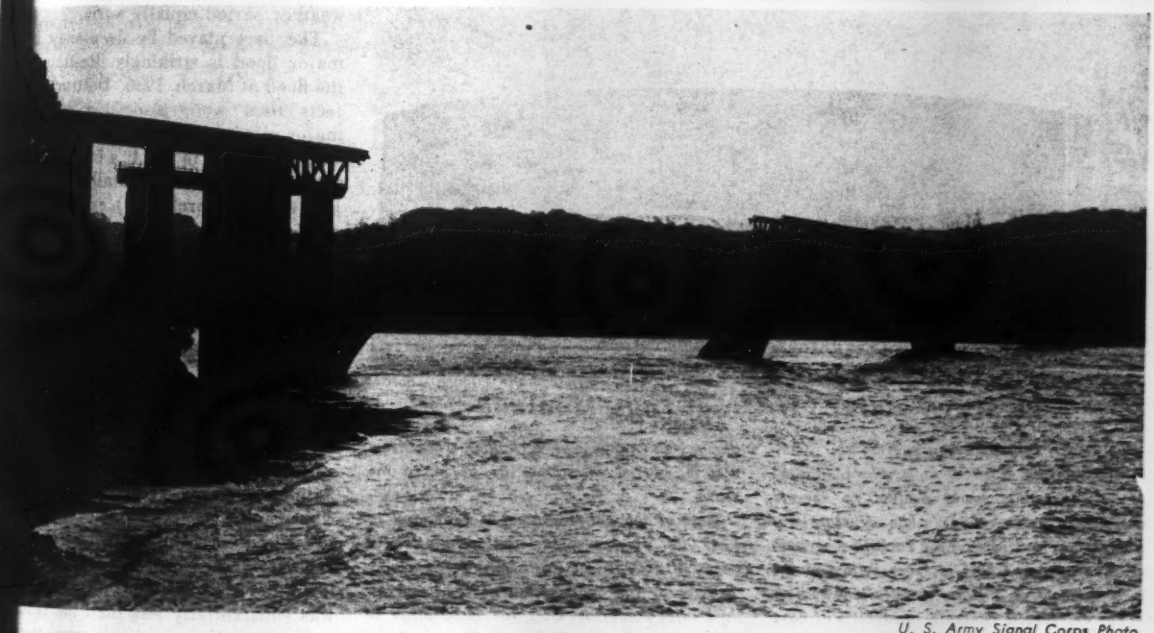
A feature of the construction was the installation of 28 horizontal jacks in the crown of the arch to prestress the rib, and at the same time to lift it free of the centering, which was then lowered and moved around to the next arch. The jack-stressing procedure was used a few years later on the Rogue River Bridge in Oregon (*ENR* Aug. 21, 1930, vol. p. 290).

The Plougastel Bridge occupies a somewhat similar position in the concrete arch field to that enjoyed by the Brooklyn Bridge in the suspension bridge field. Both jumped existing span lengths for bridges of their type to a sensational extent, and both encouraged the almost immediate designing of other long-span structures.

Unprecedented arch span

When the 612-ft. arches of the Plougastel Bridge were built, the longest concrete arch in the world was the Cappelan Memorial Bridge in Minneapolis, Minn., 435 ft., (*ENR* Feb. 12, 1920, vol. p. 335). Now, there are the 460-ft. Westinghouse arch at Pittsburgh, the 593-ft. Traneberg Bridge in Stockholm and the 645-ft. Esla River Bridge in Spain. One reported to have a span of 866-ft. over the Aangermann River, between the towns of Lunde and Sando in Sweden, suffered a disastrous centering collapse about 5 years ago (*ENR* Sept. 7, 1939, vol. p. 313, and Sept. 28, 1939, vol. p. 388). Whether it was abandoned or completed is not known.

Rebuilding of the Plougastel arch can be carried out by the same floating centering method originally used, but it will be a costly procedure, and nothing so far has been done in the direction of reconstruction.



U. S. Army Signal Corps Photo

612-ft. span arches of the Plougastel Bridge, one of which was destroyed by the Nazis, were the world's longest con- te arches when the bridge was built in 1930 and now probably are second longest.

Great depths of snow accumulated in all of the northeastern states

Snow blanket now greater than that which preceded the March, 1936, floods but record discharges this year appear unlikely

Systematic surveys in the northeastern states have revealed a water content of the snow now accumulated in that section substantially above normal for the season. In some basins the depth is in excess of that on the ground prior to the record-breaking floods of March, 1936, on major east coast streams from Maine to Virginia. However, reproduction of the sequence of unusual events that caused those floods appears improbable at present and record stages are not necessarily expected this year, according to the U. S. Geological survey.

Only in New England, New York, and northern Pennsylvania, where the average depth of snow is about 24 in., is the accumulation considered excessive. On Feb. 10 the water content of the snow in Maine varied from an average of 4.5 in. on the coastal Union River to 8.5 in. over the Androscoggin Basin above Rumford, the water content being greater than a year ago but about 2 in. less than that in March, 1936.

The snow in the Merrimack Basin in New Hampshire on Feb. 23 had an average water content of 7.5 in., which is about 1.0 in. less than the normal for March 15. Water content of the snow on the upper Connecticut River is about 7.0 in. as compared with 7.5 in. on March 9, 1936, while on the lower Connecticut the accumulation equalled 3 in., the same as that preceding the 1936 floods.

In the Thames River Basin the snow accumulation has a water content of about 2 in. or about that of March, 1936. On the Housatonic the depth is 4 in. or about the same as that before the record flood previously mentioned.

The area draining to Lake Ontario north and east of Syracuse, N. Y., has a 41-in. average snow cover with a water content of about 10 in., as compared with 6 in. on March 9, 1936. On tributaries of the St. Lawrence water equivalent in the Adirondack Mountains varies from about 5 to 8 in., being above normal in some regions and below in others.

Average depth of the snow in the upper Delaware River Basin as of Feb. 19 was about 25 in. with a water equivalent of 5 in., compared with 4.2 in. previous to the 1936 flood. In the Susquehanna watershed the average water content in the New York State portion of the basin is 4.4 in. or much above normal, and 2.4 in. over that part of the basin in Pennsylvania.

On the upper Hudson River and the Mohawk the water equivalent of the snow blanket is 6.5 in.

Thawing rate a factor

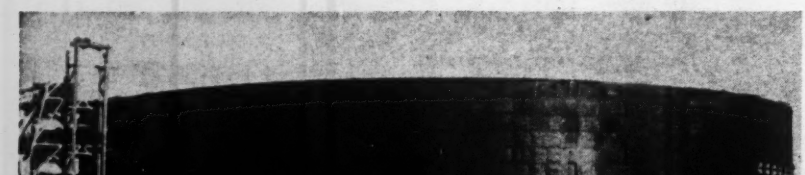
In discussing whether this snow cover may thaw at a sufficient rate to produce serious floods, Geological Survey engineers point out that under fair weather conditions the daily melting rate may reach 0.10 in. per degree Fahrenheit above freezing. Also, under fair weather conditions the critical effect of temperatures above 32 deg. F. is to bring the snow to the melting point, a fairly rapid process, while the first snow melted is retained by the snow cover, increasing its density. Then when the snow cover becomes so charged with water that the amount released is greater than that retained, runoff occurs. However, in fair weather the temperatures in the lower valley area of a given watershed are usually greater than in the higher areas and the thaw proceeds upstream in reverse direction to the collection and flow of water in the drainage system. Thus the downstream areas become clear of snow before active thaw in the higher regions begins.

Rain reverses conditions

During rainstorms the situation is apt to be entirely different. Then the snow is first charged with rain and the thawing temperature is more effective in releasing water. Moreover, owing to the higher relative humidity and to winds ordinarily associated with rainstorms the thermal efficiency of a given temperature may be twice that for a fair weather period equally warm.

The part played by deep snow in a major flood is strikingly illustrated by the flood of March, 1936. Destructive effects then were associated with two major rainstorms during which temperatures averaged in the 40's but ranged as high as the 50's. Rainfall during the first storm (March 9-13) exceeded 4 in. over an area of 7,900 sq. mi.; during the second storm (March 16-19) it exceeded 4 in. over an area of 43,500 sq. mi.; and during the whole storm exceeded 4 in. over an area of 168,000 sq. mi.

The snow-melt runoff during the first storm averaged 1.2 in., being less in the areas of deeper snow, and over 2 in. in coastal basins where snow cover was relatively shallow. During the second storm snow-melt runoff averaged about 3 in. but exceeded 5 in. in the areas where snow cover was deep, while totaling less than 2 in. in coastal areas. In regions where the snow was especially deep the runoff during the first storm was substantially less than the rainfall, indicative of a net gain in snow storage that was contributory to the catastrophe that was to follow.



Great Falls Tribune photo

Plenty of water for Great Falls, Montana

This 4,750,000-gal. storage reservoir nearing completion in Great Falls, Mont., is part of a war public works project to expand community water service. The structure was required to provide supply facilities because of a large population increase following the establishment of military installations nearby.

The reinforced concrete reservoir will have a diameter of 160 ft. and a total height above the floor of 61 ft., of which some 25 ft. is the rise of the thin-shelled concrete dome. This dome will vary in thickness from 4½ in. at the springline to 3½ in. at the crown.

Cost of the entire project is estimated at $249,000, which also includes installation of some 10,200 ft. of cast iron water mains. Contractor for construction of the reservoir is Dudley-Anderson Co.; for installation of the mains, E. H. Blakeslee Co.; both of Great Falls. Corwin and Co. are consultants for the project.

Western construction operations considered at Canadian meeting

Engineering Institute of Canada considers unusual aspects at the Steep Rock development and also future irrigation projects

Civil engineering and construction questions that arose in connection with the spectacular Seine River diversion as part of the Steep Rock mining development in western Ontario were the high points of the 59th annual meeting of the Engineering Institute of Canada, held at Winnipeg, Man., Feb. 6-8 with nearly 500 members in attendance.

At the business meeting there was discussion of a voluntary assessment being made on the membership to pay for an addition to staff to cope with the special problems of rehabilitating members returning from the armed forces, the council of the institute having previously approved of this step. The council also decided to set up a special committee to assist with the general development of community planning, having special regard to its place after the war.

City development criticized

Community planning was the subject of a special address by John S. Galbraith, head of the community planning division of the National Housing Authority at Ottawa, himself a member of the institute. Criticising city development in Canada in the past, Mr. Galbraith suggested that municipal assessment systems needed drastic revision preliminary to useful planning, and called upon engineers to play their full part in the work, a vital public need and one that engineers should be tackling.

Seine River diversion

Chief technical interest centered in a group of four papers on the Steep Rock Iron Mine and associated works, in western Ontario. This unique project was generally described in an article by N. S. Bateman in *Engineering News-Record* Dec. 14, 1944, vol. p. 764, and so the essential features need not be repeated here. Watkin Samuel, chief engineer of Steep Rock Iron Mines Ltd., gave the first paper of the symposium, dealing with the discovery and general development of the mine. A. W. F. McQueen and C. N. Simpson, engineers on the staff of H. G. Acres and Co., the consulting engineers for the remarkable river diversion works, presented the second paper describing the detailed investigations which were made prior to the undertaking of the Seine River diversion work.

Much of the success of the operation depended upon the assumptions made regarding flow in the deep rock cuts, for which a coefficient of 0.045 in Manning's formula was assumed. Operating results have shown that the assumptions were well justified, although it had not yet been possible to check accurately the actual flow conditions in the diversion works.

Much interest was developed by the third paper of the group, a description by C. H. Hopper, consulting engineer to Boyles Brothers Drilling Co., of the experimental use of diamond drills for the excavation of the west cut at Raft Lake. In discussion, this unique experiment was described as the biggest step forward in rock excavation work for many decades, by David Forgan, construction engineer to the "Ontario Hydro" which was responsible for the 140-mile transmission line built to the Steep Rock development from Port Arthur.

Diversion cut through rock

For diversion of the Seine River through Raft Lake two rock cuts were necessary, each about 882 ft. long, the east cut being 51 ft. in average depth (64 ft. maximum), and the west cut being 62 ft. in average depth (90 ft. maximum), the two cuts being 100-ft. wide. The east cut was excavated by drilling with ordinary well drills and blasting in the usual way.

The west cut was subcontracted to

(*Continued on page* 11)

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Engineers from China inspect U. S. projects

River, harbor and power projects of the Federal government in the vicinity of Portland, Ore., and in the Columbia River valley were recently inspected by a party of nine outstanding Chinese engineers.

Chang Han-ying, flood control expert of the National Conservancy Commission of the Chinese government, who received his B.S. degree at the University of Illinois and his master's at Cornell, headed the party. The tour was under sponsorship of the United Nations Relief and Rehabilitation Administration.

The Conservancy Commission is responsible for all of China's flood control, navigation, water power and irrigation developments.

Mr. Chang said, "China is depending on improved and extended irrigation projects to build up a food supply system which is now precarious for the country's huge population." His favorite project is flood control on the Hwang-ho and Yellow rivers for food production on the vast delta triangle.

Bureau of Reclamation photo

Engineering experts from China, all members of China's National Conservancy Commission, are pictured at Grand Coulee Dam. They are, left to right: Lin Ping-yi, chief engineer, Huai River Commission; Chang Jen, chief engineer, Yangtze River Commission; Chang Quang-tou, hydroelectric engineer; Liu Shang-juei, chief engineer; Tsai Pang-lin, chief of irrigation division; Chang Han-Ying, commissioner; Hsu Shih-ta, senior expert; Tsai Chen, senior expert; Wu Yiu-sing, expert on flood control, and S. F. Hutton, engineer of the U. S. Bureau of Reclamation.

News of the Engineering Schools

The Sheffield Scientific School, New Haven, Conn., which was organized in 1858 as a separate school, lost its identity at the beginning of the present academic year. Sheffield is now known as the Division of Science of Yale University and its faculty is called the teaching body in sciences in the Yale Graduate School. Undergraduate candidates for the bachelor of science degree will be enrolled in Yale as bachelor of arts students now are. The change will not affect either undergraduate or graduate candidates for degrees in engineering.

The courts have ruled that the trustees of Rayen School, Youngstown, Ohio, may lease the former Rayen School building to Youngstown College for 20 years for an engineering school to be known as the William Rayen Technical Institute. The college will spend $75,000 for remodeling and equipping the building, and will conduct there an engineering and technical school, as well as trade schools for returning veterans and others.

Twenty civilians are being trained in a course in water supply operation by the University of Texas engineering department at Austin. They will operate water systems in stations, camps and posts throughout the army's Eighth Service Command.

A gift of $500,000 to the Case School of Applied Science, Cleveland, Ohio, by Mrs. George A. Tomlinson as a memorial to her husband will be used for a new college union building to be known as the Tomlinson Memorial. It will be erected when wartime building restrictions are removed.

Construction of a $500,000 engineering building at Vanderbilt University, Nashville, Tenn., when war conditions permit has been authorized by the board of trustees. Tentative plans call for the erection of the building if a fund of $250,000 is raised to match a university appropriation. The board approved plans for obtaining gifts for the building and equipment and agreed to set aside funds from other university resources for the other half of the amount required.

V. L. Streeter, for the past four years, a civil engineering instructor at the Illinois Institute of Technology, Chicago, has been transferred to the Armour Research Foundation as supervisor of fluid mechanics in the engineering mechanics division, according to Jesse E. Hobson, director of the Foundation. Streeter worked for five years as an engineer with the U. S. Bureau of Reclamation, Denver, Colo., and later was associate hydraulic engineer for the United States-Mexico Inter-Boundary Commission.

Maj. Alex O. Taylor, who has been on leave for service in the Army, has returned to Alabama Polytechnic Institute at Auburn where he will resume direction of the Engineering Extension Service. He served in the Army Engineers for over three and one-half years. He was in charge of the construction of the Atlanta airport expansion, the Marietta airport at the Bell Bomber Plant, the Columbus, Ga., CAA airport, and the Auburn-Opelika airport. He went overseas in 1942, and worked on the construction of airports, hospitals, and cantonments in England for about seven months, and then went to North Africa for engineering work.

Forty-six co-eds are studying engineering at the University of Texas. "They are making good because they are self-selected," said Dean W. R. Woolrich. "They choose their own field of study; they know their mathematics and physics; and they realize that a woman has great opportunities in engineering."

For the first time in the history of the University of California, a girl has been awarded an engineering prize. Mary Lou Coombs, Fresno, Calif., was one of the winners of the award for an outstanding record among freshmen in the college of engineering.

In line with present demands and the anticipated expansion in the postwar era, Purdue University trustees have approved the organization of a school of aeronautical engineering, effective next July 1, President Edward C. Elliott has announced.

The plant of the Georgia School of Technology, Atlanta, is now valued at $4,000,000 and the school has plans for expansion which will cost more than twice that sum. President Blake R. Van Leer said that while it had been proposed that Tech move to an outlying site where there would be ample space for expansion, heads of the school have decided to keep it in its present location and acquire land in that vicinity.

President Livingston W. Houston of Rensselaer Polytechnic Institute, Troy, N. Y., in a recent statement outlined the three present main objectives of that oldest engineering institution, as follows:

1. To improve and strengthen the curricula of both the undergraduate and graduate schools by placing more emphasis on fundamentals, and broadening their scope and outlook by incorporating the technological developments of the war period.

2. To improve and strengthen the present faculty by making more time available for research and self-development, providing more facilities, and from time to time adding outstanding teachers of science and engineering.

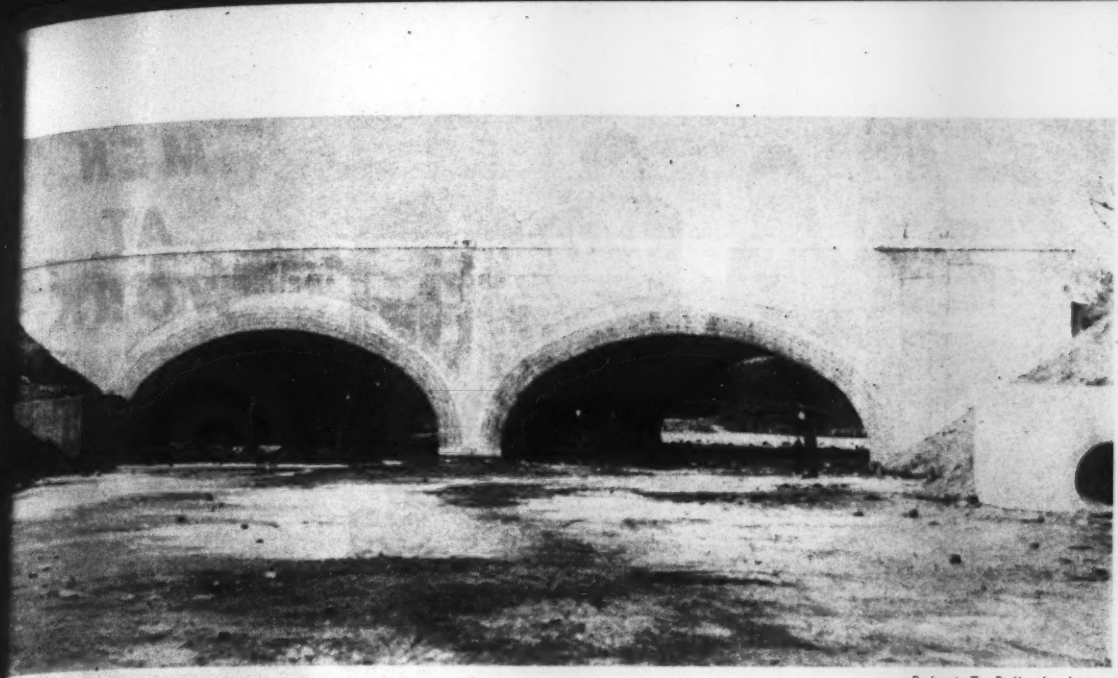
3. To improve and enlarge the physical plant with rearranged and modernized laboratories, additional equipment, new buildings, and more facilities for social, recreational and athletic activities.

The University of Toronto in its department of applied science and engineering is arranging a special summer session for service men returning to civil life. The course will start in April and will be restricted to first year students of engineering only. It will correspond exactly with the normal freshman year of engineering study, successful students passing into the ordinary second year of study at the opening of the regular session next September. This is the first such accelerated course to be introduced in engineering at the university since the start of the war. It is planned as an emergency measure.

Expansion of its program for engineering students under a newly-created division of engineering in the College of Arts and Sciences has been announced by the University of Rochester, Rochester, N. Y.

The new division is a development of the department of engineering and President Alan Valentine says it will have much of the freedom of action usually associated with a separate school. It is being set up in anticipation of a greatly increased demand for engineering training after the war, as well as to meet present needs.

The university offers a 4-year engineering program, with an optional 5-year course. The additional year enables engineering students, along with their science subjects, to study modern society, history, economics, and literature. At the end of the 5-year course they will receive both Bachelor of Arts and Bachelor of Science degrees.



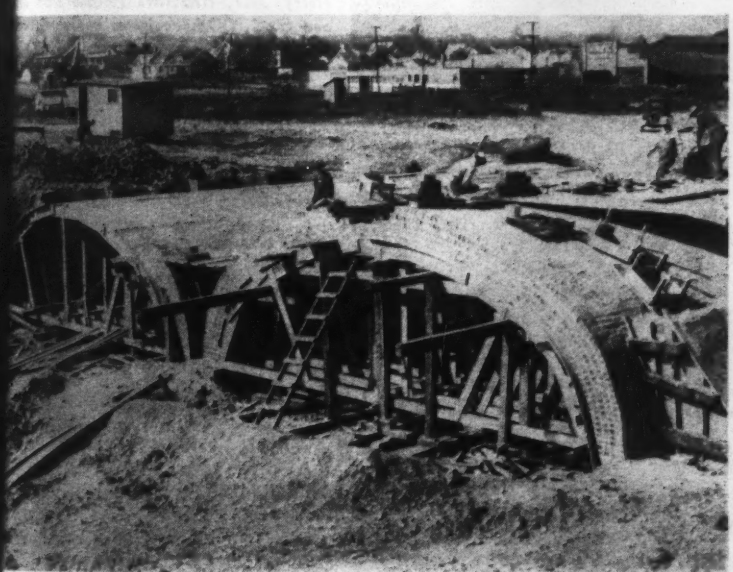
Robert T. Ballard photos.

o conserve critical materials, vitrified paving brick was used to construct a two-span arch bridge in Canton, Ohio.

Bridge Conserves Critical Materials

Except for the lumber used as cen-ing, a bridge was built recently in nton, Ohio, without the use of criti- materials. Constructed of concrete d vitrified paving brick, it is a two-n, three-centered arch, each having lear span of 28 ft. and a rise of 9 ft.

The brick arches are laid up with a push joint of 1:2 mortar and the rows are bonded with header courses located wherever two courses lined up. As shown in the illustration below, the five courses of brick comprising the arch are laid about one-third of the way up each side, then left to set before the center of the arch is filled in.



ick was laid one-third the way up each side of the arch and left to set before nter was filled in. The brick are laid up with a push joint of 1:2 mortar and e rows bonded with header courses located wherever two courses lined up.

The brick arch is supported on piers 6 ft. high and tapering in width from 5 ft. at the top to 6 ft. at the bottom. Footings 3 ft. thick, resting on gravel, are 11 ft. 6 in. wide at each end and 10 ft. wide in the center. Foundations and piers are 1:2½:4 concrete. There are three construction joints but no expansion joints in the walls. The bridge carries a 40-ft. gravel roadway, with a 6-ft. 4-in. sidewalk on each side, over Nimishillen Creek, but provision has been made for future paving.

Maintenance cost negligible

It is believed that the vitrified paving brick will successfully resist the damage of the elements and industrial wastes and acids. Little or no cost of maintenance is expected, which would compensate for the possible slight extra cost for the initial construction over the cost of using other materials. The contract cost of the complete bridge, including excavation and backfill, was $34,875.

The structure was designed by John A. Shisler, Canton city civil engineer. The design and plans were approved by the engineers of the Structural Clay Products Institute, and the bridge was constructed by The Garaux Bros. Co., contractors, Canton, Ohio.

MEN AT WORK

Recently, engineers of the U. S. Geological Survey and the War Production Board, were called together by Arthur E. Gorman, director of the water division of the Office of War Utilities, WPB, to study methods to be adopted in drought emergencies likely to affect water utilities, as have recently arisen in some parts of the Middle West, and in anticipation of spring floods from heavy northern snows. Those present were, left to right: O. E. MEINZER, chief, ground water division, Geological Survey; D. V. McCARTHY, executive assistant to the director of the water division, Office of War Utilities, WPB; Mr. GORMAN; R. K. KASEL, chief of the surface water division, Geological Survey, and R. W. DAVENPORT, chief of water utilization, Geological Survey.

Two key engineers with the North Carol State Highway and Public Works Commi sion. B. W. DAVIS (left) is chief main tenance engineer and J. C. GARDNER division engineer at Tarboro.

LT. COL. C. F. DUNCAN, (third from left) chief of the building and mechanical branch of the engineering division, South Atlantic Division, U. S. Army Engineers, discusses an important problem with W. J. BALDWIN (left), J. T. HIGGINS (second from left) and H. C. COX, engineers in Col. Duncan's branch.

Activities of the student chapter, American Society of Civil Engineers, at the Georgia School of Technology, are discussed by left to right: PAUL WEIR, assistant general manager of the Atlanta Water Works and a director of the Georgia section of the society; PVT. BOWMAN STARNES of the U. S. Marine Corps, president of the student chapter; J. EDWIN JAEGGER, acting assistant secretary of the society; and R. P. BLACK, associate professor of civil engineering at Georgia Tech.

Western construction ... Canadian meeting

(Continued from page 7)

Hopper's firm, which first drove a tunnel from which horizontal ond drill holes were drilled at the m elevation of the cut, to act as s. Rows of diamond drilled holes put down from the surface at 6-ft. rs, the holes being 10 ft. apart on row. Two sets of rows, giving a advance, were blasted at one time. illing was carried out with non- g concave type blasthole bits set about 300 diamond borts, having al weight of about 6 karats. Rock d was a hard greestone with almost cal jointing. Average progress per as about 62 ft.

Economies shown

though unable to give contract s, Mr. Hopper gave a detailed com- on in his paper between the rock in the two cuts, the more significant s in which are as follows (data for est or diamond-drilled cut being first in all cases): Overbreak, 4 nt as against 20.8 percent; 75 per- Polar forcite gelatin used per cubic of total excavation, 0.80 as against lb.; amount of secondary trimming , 1.5 percent of all costs as against percent; average performance of yd. shovels in handling blasted , per shift for the whole job, includ- all lost time, 770 cu. yd. or 77 per- capacity, as against 570 cu. yd., or ercent capacity.

r. Hopper's conclusion was that the hod developed would show up to advantage on a face 200 ft. wide 100 ft. deep, but that it would not ompetitive where the depth was less 40 ft.

Ore dock construction

nal paper of the symposium was by . Fleming, president of C. D. Howe Co., consulting engineers of Port ur, describing the ore loading dock g constructed at Port Arthur, by the adian National Ry. for shipping the p Rock ore.

he dock is a timber-pile structure, iles driven to bedrock, and support- the reinforced-concrete superstruc- , the dock being one of the very few loading structures of concrete in th America. In general, the design ows American practice in high-level storage pocket docks, having a total city of 30,000 long tons, arranged discharge on both sides, the pockets ciding in length with the new ore- dling cars specially constructed by C.N.R.

he dock is expected to be in use early this summer, concreting currently proceeding even at 40 deg. below zero temperatures, the entire superstructure being housed in and heated with unit heaters.

Western irrigation plans

Irrigation works, and water conservation measures in the Canadian West were highlighted in an address by George Spence, director of the Prairie Farm Rehabilitation Administration at Reigna, Sask. Mr. Spence stated that $30,000,000 worth of water conservancy works is already in the blue print stage, fully investigated, and ready to be put under construction at any time. An addition $70,000,000 worth of projects are at present being studied.

Specific projects discussed by Mr. Spence included the St. Mary's and Milk River project, which will bring 345,000 acres of new land under cultivation by irrigation, will cost $15,000,000 and employ 1,000 men for five years, and the Red Deer River Project, which has already been under study for five years. Originally planned for a very large area, it has now been scaled down to a $7,000,000 project.

Part of the Missouri basin

The St. Mary's and Milk River project will form a small part of the development of the Missouri River Basin (*ENR* Dec. 14, 1944, vol. p. 757), and so will be subject to international agreement even though the works for the project will be in Canada.

Irrigation water from the St. Mary River will be obtained by means of a dam near Spring Coulee, Alberta, and the preliminary investigations for this structure were described by Robert Peterson, soil mechanics engineer with the P.F.R.A., at a session devoted to soil mechanics. The dam will be a rolled fill, 186 ft. high, with a crest length of about 2,500 ft.

Many laboratory studies have been performed on the glacial clay available for the dam structure, these being detailed in Mr. Peterson's paper. The most unusual feature is the demonstration from analysis of slope stability, coupled with shear tests on the soil compacted to varying densities, that an unusually high degree of compaction will be necessary to provide the necessary stability, considerably higher than normally obtained with the usual Proctor test and corresponding methods of construction.

The second soil mechanics paper was by G. B. Williams, materials engineer with the highways branch of the Department of Public Works of the province of Manitoba, in which the importance of soil studies to the satisfactory performance of the large mileage of secondary roads in the prairie provinces was stressed. The extremes of exposure contemplated by the California bearing test were commented upon, and evidence produced to show that in actual practice, the condition of complete saturation is not usually obtained.

The corresponding importance of soil studies in airport design was stressed in discussion, notably by J. A. Wilson, Director of Civil Aviation for Canada, who stated that his organization is taking steps to see that soil studies are given full consideration in future airport work in Canada. He stated that wheel loads of 75,000 lb. were in immediate prospect for Canadian airfields, with a figure of 140,000 lb. in prospect for the near future.

At the annual dinner of the Institute, Mr. Wilson was one of the recipients of the Julian C. Smith medal, awarded for "contributions to the development of Canada." Dean E. P. Featherstonhaugh of the University of Manitoba also receiving this award. Senior technical award of the institute, the Gzowski Medal, went to Walter Greisbach, chief engineer of the Foundation Company of Canada for his paper on the construction of the Shipshaw Power Development.

New officers

E. P. Fetherstonhaugh, dean of the faculty of engineering and architecture at the University of Manitoba, was elected president to succeed De Gaspé Beaubien of Montreal. Dean Fetherstonhaugh graduated from McGill University in 1899, served for a time with the Westinghouse Electric and Manufacturing Co. in Pittsburgh and later with its Canadian subsidiary, and in 1909 was appointed to the newly established chair of electrical engineering at the University of Manitoba. During the First World War he served with distinction with the Canadian Engineers. Since 1937 he has been a member of the National Research Council of Canada.

Dean Fetherstonhaugh is known to civil engineers in this country for his work on the board of engineers appointed by the city of Winnipeg to study the problem of electrolysis and soil corrosion of underground water pipes.

New vice presidents are R. A. Spencer, dean of engineering at the University of Saskatchewan; C. E. Sisson, works engineer, Canadian General Electric Co.; and John E. Armstrong, chief engineer, Canadian Pacific Railway.

MEN AND JOBS

William W. Caldwell, Vice President of the building construction firm of Iglehart, Caldwell & Scott, Inc., of New York, has been elected president to succeed Stewart B. Iglehart, who has been named chairman of the board.

Mr. Caldwell is a graduate of Rensselaer Polytechnic Institute. Prior to the founding of Iglehart, Caldwell & Scott, Inc., he worked on irrigation and power projects in Spain and South America. For many years he was associated with the Thompson-Starrett Co. where he had charge of many projects, among which were the Paramount Building, Equitable Trust Co. Building, Equitable Life Insurance Building, Doctors' Hospital and the Herald Tribune Building in New York City. He was in charge of construction of the Bryant Building in Kansas City, Mo., and the Grant Building in Pittsburgh, Pa. Mr. Caldwell was also associated with the J. G. White Engineering Corp., where he acquired extensive experience in engineering, building construction and reports.

Lieut. Col. L. V. Bean, former city manager of Waycross, Ga., has been released from active service after three years and seven months with the Corps of Engineers, U. S. Army, and has resumed his duties as city manager. He was formerly with the engineering department of the Atlantic Coast Line Railroad.

J. Perry Shumaker, central Ohio highway division engineer, has been appointed postwar projects engineer for Columbus. His duties will be to coordinate the city street planning with that of the Franklin County Planning Commission. He will also carry on liaison with the Ohio State Highway Department and the Federal Bureau of Roads in obtaining the city's share of funds for highway construction.

A. L. Killaly, superintendent-engineer of the Trent Valley Canal of the Department of Transport, Ottawa, Ont., has been retired at 72, after 50 years service.

Maj. Harold U. Andreae succeeds **Lt. Col. Paul F. Startzman** as chief of the engineer supply section at the Columbus, Ohio, Army Service Forces Depot. Col. Startzman has been transferred to the supply division of the Ohio River Division office. **Maj. W. L. Brown** has been acting executive of the engineer supply section.

W. B. Fowler, who has been serving as city engineer at Memphis, Tenn., for three years without official appointment, has been recommended to the city commission for a one-year appointment by Commissioner O. P. Williams.

Wade W. Shidler, Stark County, Ohio, resident engineer for the Ohio Highway Department, has been appointed safety-service director at Alliance, succeeding **Donald B. Heffelfinger,** who will take over the newly-created post of engineer-superintendent of the sewage and water department. Mr. Shidler, who is resigning his state post, is a former city engineer of Alliance and served a term as Stark County engineer.

District engineer at Louisville, Ky., for the U. S. Engineers, from 1933 to 1936, **Col. Gilbert V. Wilkes** is returning to that post, succeeding **Col. J. H. Veal,** who has been assigned elsewhere. Colonel Wilkes has been district engineer at Pittsburgh, Pa., and formerly served in the Philippines and later on the faculty of the University of Illinois.

Samuel B. Leslie, city engineer at St. Joseph, Mo., has resigned and taken a position with the Burns & McDonnell Engineering Co. in that city.

Lt. E. B. Wilson has been appointed head of the Oklahoma City, Okla., office of the U. S. Army Engineers. He succeeds **Maj. E. A. Cornell,** who has been transferred to the Dallas, Tex. office.

Nathan B. Barber, city engineer of Waterloo, Ia., has resigned to become construction engineer and superintendent for the Waterloo, Cedar Falls & Northern railroad. **A. B. Cook,** assistant city engineer, has been appointed acting city engineer.

Richard L. Hearn, a graduate civil engineer of the University of Toronto, is chief engineer of the Hydro Electric Power Commission of Ontario, in charge of design and construction. Chief engineers in charge of operations and municipal work, respectively, a **John Dibblee** and R. T. Jeffrey. T **Hogg** is chairman.

Everett L. Miners has retired fr the Royal Canadian Air Force, and h been named chief engineer of C. Miners Construction Co., Ltd., Sask toon, Sask.

Carl F. Winkler, Houghton, has be appointed Upper Peninsula member the Michigan state highway advis board. He has been Houghton Coun road commission engineer since 19 He previously served as engineer of t Gogebic County road commission.

Carlton W. Lingham, assistant h draulic engineer with the U. S. Ge logical Survey, has been transferre from the Clewiston to the Ocala, Fl office of the survey. He is engaged special stream flow reports and fie assignments, and preparation of da for water supply publications. M Lingham is a graduate of the Universit of Florida. Nearly all of his engineering experience has been with the surfac water division of the survey.

M. B. Sheik, construction projec manager of the Geneva steel plant i Utah has been transferred to New Yor City where he will head easter domestic activities and all foreign de velopment for Morrison-Knudsen Co Inc., of Boise, Idaho.

Formerly employed by the same com pany, Mr. Sheik went to Geneva as work project manager for Utah-Pomeroy-Mo rison Co. and soon was made manage of the entire project by Columbia Steel Co. Mr. Sheik plans to leave soon on inspection of Morrison-Knudsen opera tions in Rio de Janeiro and Venezuela.

Col. Roy F. Bessey, special adviser to the Bonneville Power Administration, Portland, Ore., during the last three years, was given a leave of absence recently to become chief transportation officer of the United Nations Relief and Rehabilitation Administration in China. Col. Bessey will direct the unification and coordination of all types of transportation. Col. Bessey's former work included an assignment with the Panama Canal Commission in 1911, followed by service with the Department of Interior, Army Engineers, Naval Bureau of Yards and Docks, and an executive assistant to President Roosevelt.

Chester B. Gray, director of the National Highway Users Conference, has resigned after six years. **P. D. McLean,** chief of information, is acting as director, and will continue until Mr. Gray's successor is named.

Federal planning aid may be increased

In all probability the Senate in acting the independent offices appropria- bill (H.R. 1984) will increase siderably the aid to local communi- for postwar planning of public struction. When the House passed bill Feb. 8 it reduced from $75,- ,000 to $5,000,000 the amount of for local groups, although Presi- t Roosevelt had asked for the larger propriation and the federal works ncy after an extensive survey indi- ed at least this much was needed. The hearings on the bill now in prog- before the Senate Appropriations mmittee are being conducted in ed session, as are most Senate com- tee hearings dealing with appropri- ns, but enough of what is transpir- has been revealed to indicate that increase may be expected. Mayor Guardia of New York after appear- before the committee stated he had e on record as in favor of the full ,000,000. Because he is mayor of the ntry's largest city and head of the ited States Conference of Mayors testimony will carry considerable ght.

Other important witnesses have also racterized the House item as grossly dequate. In addition, the cry to avoid ther WPA is strong, as is the de- nd to make sure that returning vet- ns have jobs.

Last week Senator Maybank, of South rolina, a member of the committee, dicted that these considerations uld impel the Senate to increase the to at least $60,000,000. Although the rease may not be that much, it is pected to be considerable.

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Bills in Congress would change contract methods

A bill (H.R. 2030) has been intro- ed in Congress to replace the pres- cost-plus and other systems of con- cting on federal construction by a tem of negotiated lump-sum con- cts. Similar to a bill introduced in last session of Congress but never ed upon, the bill would require the arding authority to negotiate with the eral contractor a lump-sum fee for services. The contractor would then otiate contracts with the subcon- ctors on a lump-sum basis.

Selection of the general contractor uld be made by a "construction con- ct ratifying committee" of three en- eer or architect members appointed the President for 6-yr. terms with proval of the Senate. This commit- tee would first submit to prospective contractors a questionnaire concerning their qualifications for the proposed work.

The procedure proposed has been attacked by the American Road Builders' Association and other groups as impractical, unnecessary and discouraging to private enterprise. When and if the proposal will get consideration by the present Congress has not been revealed.

Representative Carter Manasco of Alabama has introduced a bill in the House (H.R. 2284) intended to eliminate what he terms "the practise by subcontractors, under cost-plus-a-fixed-fee or cost reimbursable contracts of the United States, of paying fees or kick-backs to employees of the prime contractors for the purpose of securing the award of subcontracts or orders." The bill would prohibit any contractor from paying compensations of the type mentioned and proposes a $10,000 fine or a two-year prison term for any person accepting such a payment.

At Santiago, Chili, a $340,000,000 public works program has been outlined. Preliminary surveys on projects including railroads, highways, bridges, water and irrigation systems, harbor improvements and government buildings have been started.

JOBS OF THE WEEK

MISCELLANEOUS BUILDINGS, Radford, Va.

U. S. Engineers, Norfolk, awarded an architect-engineer-management contract to Mason & Hangar Co., Inc., New York, N. Y., for miscellaneous buildings for greater production of explosives at Radford Ordnance Works. The estimated cost is $10,000,000.

WHARF and PLANT, Powell River, B. C.

Northern Construction Co. and J. W. Stewart, Ltd., Vancouver, have been awarded a contract by the Powell River Co., Powell River, for wharf with reinforced concrete deck and reinforced caps on treated timber piles; also hydraulic barking plant for pulp and paper manufacture. The estimated cost is $1,000,000. Hill, White & Sprake, and H. R. Powell, Seattle, are the engineers.

AUTOMATIC SPRINKLER PROTECTION, Columbus, Ohio

U. S. Engineers, Cincinnati, Ohio, awarded a contract for plant and materials for installing automatic sprinkler protection system at Columbus ASF Depot to Globe Automatic Sprinkler Co., Cleveland, at $908,904.

MODIFICATION OF LOAD LINES, LaPorte, Ind.

H. K. Ferguson Co., Cleveland, Ohio, has been awarded a construction contract by U. S. Engineers, Chicago, Ill., for load lines at Kingsbury Ordnance Plant to cost about $3,000,000.

ALTERING PLANT, Espanola, Ont.

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich., awarded a contract for altering plant to sulphate pulp mill to P. D. Dalton Co., Ltd., Espanola. The estimated cost is $5,000,000.

PLANT BUILDINGS, Woodridge, N. J.

Wright Aeronautical Corp., Paterson, N. J., awarded a contract for the conconstruction of additional plant buildings to Mahony-Troast Construction Co., Passaic, N. J. The estimated cost is $2,500,000. Defense Plant Corp. will finance.

BUILDINGS AT Picatinny Arsenal, Dover, N. J.

Wigton Abbott Corp., Plainfield, N. J., has been awarded a contract for the construction of several buildings at Picatinny Arsenal by U. S. Engineers, New York, N. Y. The estimated cost is $1,000,000.

AIRPORT, San Antonio, Tex.

U. S. Engineers, Fort Sam Houston, awarded a contract for paving heavy duty concrete aprons, taxiway widening, runways, night lighting system, and constructing a control tower at Randolph Field to M. B. Killian & Co. and E. B. Darby Co., San Antonio at $2,029,221.

EXTENDING RUNWAYS, Whiting Field, Fla.

Bureau of Yards & Docks, Navy Department, Washington, D. C., has awarded a contract for extending runways to 7,000 ft. at Naval Auxiliary Air Station to Smith Engineer & Construction Co., Pensacola at $966,205.

Note—Additional bidding and contract news on many projects large and small appear in the Construction News section beginning on page 15.

OBITUARY

John D. Ball, 62, engineer and professor at Mt. Mary College, Milwaukee, Wis., died Feb. 10.

Napoleon W. Monette, 7*3*, for many years a building contractor in Ottawa, Ont., died there Feb. 18.

David Tudor Lewis, 75, a retired civil engineer died at his home in Independence, Mo., Feb. 14. For many years before his retirement he headed the engineering department of the Bay State Land Co.

Charles William Bosler, 65, a construction engineer, died Feb. 16 at Valley Forge, Pa. He was a graduate of the University of Pennsylvania and was associated at various times with the Philadelphia Rapid Transit Co., the American Railways Association and the Pennsylvania State Highway Department, where he worked seven years. From 1915 to 1931 he was a commissioner of Cheltenham township.

Clement A. K. Cornwell, 69, engineer of the British Columbia Electric Railroad Co., Ltd., died recently. He was a graduate of McGill University.

Arthur B. Tarpey, 68, Fresno, Calif., president of the Fresno Irrigation District from 1926 to 1937, died Feb. 17. Mr. Tarpey had served on the Water Resources Committee, which helped plan the Central Valley Project, and in 1932 he was named a director of the National Reclamation Association.

• • •

Kansas builds up fund to buy road equipment

Counties, townships and cities in Kansas will be able to buy needed machinery and other equipment for highway and road building from special funds accumulated during the war years, according to the American Public Works Association.

The funds, which total $2,457,515 are accumulating under statutes enacted by the state legislature in 1941 and 1943 to enable the local governments to build up reserves for use when materials and manpower become available.

Of the total purchasing fund $1,320,976 has been accumulated by 83 counties; $489,987 by 459 townships; and $146,552 by 104 cities of all classes.

Procedure for accumulating the funds is as follows: the county, township or city annually transfers by resolution from the regular road, bridge or street fund money, not to exceed 25 per cent of the amount credited to the regular fund and subject to legal expenditure in the year, to a special road, bridge or street building equipment fund. The amount transferred does not have to be the same each year, and the special fund can be augmented by residual moneys at the end of each fiscal year. The governmental unit can purchase road or street machinery with all or part of the funds at any time and without notice to the public.

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Montreal master plan is ready in detail

A master plan for Montreal, Que., complete with details of the routes of subways, expressways, superhighways, and particulars of housing, zoning, and open space-green belt areas, was presented recently for the first time publicly by Aime Cousineau, director of the City Planning Department. It had been in preparation for four years.

Two express highways are recommended with a number of optional routes for rapid transit. The first of these projects to be built in the post-war period with funds available from the $800,000,000, which the federal government is reported to have available for such work, will run mostly along the waterfront and the Lachine Canal to the vicinity of St. Remi Street, where it would join with existing metropolitan boulevard super-highway links.

Another projected expressway would start at King Edward Pier and proceed northward to St. Lawrence Boulevard and Pine Avenue, where it would join projected super-highway links. Four more north-south super-highways through the city, with a number of secondary "major" highways created by widening existing streets, are also proposed in the plan.

MEETINGS

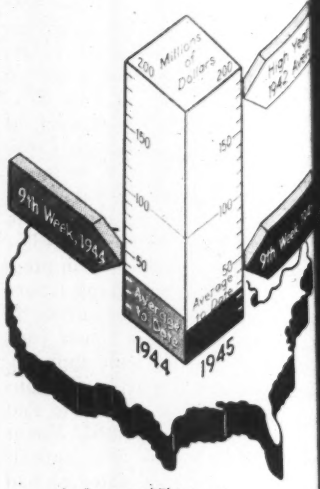
Regional and Local

NORTH WEST GOOD ROADS ASSOCIATION OF MINNESOTA, annual meeting Nicollet Hotel, Minneapolis, Minn., March 16.

CANADIAN SECTION, AMERICAN WATER WORKS ASSOCIATION, Toronto, Canada, March 19-21.

MONTANA SECTION, AMERICAN WATER WORKS ASSOCIATION, Lewiston, Mont., April 13-14.

CONSTRUCTION ACTIVITY



As Reported This Week to... *Engineering News-Record*

CONTRACT VOLUME

Continental U. S. Only
(Thousands of Dollars)

	Week of Mar. 1 1945	Cumulative 1945 (9 wk.)	Cumulative 1944 (9 wk.)
Federal	$31,153	$143,269	$222,44
State & Municipal	1,553	26,210	24,34
Total Public	$32,706	$169,479	$247,58
Total Private	6,276	67,212	66,21
U. S. Total	**$38,982**	**$236,691**	**$313,80**

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Type of Work	Dollar Volume (Thousands) This Week	Cumulative 1945 (9 wk.)	Cumulative 1944 (9 wk.)
Waterworks	$600	$6,789	$4,61
Sewerage	223	6,496	3,97
Bridges	580	6,409	1,88
Highways	287	10,344	18,66
Earthwork, Waterways	216	3,907	10,81
Buildings, Public	24,095	101,432	134,02
Industrial	2,630	42,214	28,67
Commercial	2,625	16,255	30,15
Unclassified	7,726	42,845	81,01

NOTE: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	1945 (9 wk.)	Cumulative 1944 (9 wk.)
NON-FEDERAL	$120,407	$69,12
Corporate Securities	9,595	47,37
State and Municipal	110,812	16,37
RFC Loans		5,37
FEDERAL	$77,137	$90,82
Total Capital	**$197,544**	**$159,95**

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Feb. '45	303.70	145.99
Building Cost	Feb. '45	237.71	128.50
Volume	Jan. '45	63	2

CONSTRUCTION REPORTS

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.
ELSIE EAVES, Manager — SCOTT McLEOD, Statistics — J. A. MAHONEY, Reports
(Daily service also available—Write for details)

WATER SUPPLY

POSED WORK

k., Danville—City, S. Powers, mayor. Hall, dam to supply city with water. 000; M. Z. Bair, Gazette Bldg., Little engr.

k., Little Rock—Little Rock Municipal r Works Comn., City Hall, L. A. Jackmgr., laying 12 in. feeder main to west section of city, $30,000.

lif., Sharp Park—North Coastside Water Sharp Rock, voted bonds, 8 in. pipeline, 500. E. P. Wilsey, Hillsborough, engr.

aho, Twin Falls—City, City Hall, enging filter plant, exten. distr. sys. and structing two 1 m.g. reservoirs. J. E. es, City Hall, city engr.

d., Anderson—City Water Dpt., City water softening sys. at Water Works, 000 or more. V. Lee, City Hall, city

s., Meadville—Erie R. R. Co., J. W. ith, ch. engr., Midland Bldg., Cleveland O., water supply intake in French Creek.

s., South Greensburg — Westmoreland ter Co., Westmoreland, dam across Slate ek.

Tex., Fort Sam Houston—U. S. Eng., t Sam Houston, bids soon water distr. changes, incl. removal, salvage and reation 500 lin. ft. 6 in. waterline, installing fire hydrants and 9,820 lin. ft. 6- to 16- water line.

Tex., Houston—City, M. H. Westerman, y, City Hall, bids soon 2 m.g. reservoir East End Pump. Station, $31,500. CD 7—ENR 1/25; water well at Central ter Plant, just off Buffalo Dr.

Tex., Houston — City, laying small c.i. ins and fire plugs. $100,000 appropriated.

Tex., Winters—City, City Hall, bids soon ter treatment plant, $18,000; c.i. water pply lines, $20,000. French Engineering , P. O. Box 1127, Abilene, engrs.

Utah, Ogden—City, c/o City Recorder, y Hall, group wells in Hinckley Airport a, supplying culinary water to West den. Applied for FWA funds. W. Temton, City and County Bldg., city engr.

Wash., Dayton—City, City Hall, H. Bamrd, water supt., well and 500,000 gal. resvoir, $25,000.

†Alaska, Fairbanks—City, City Hall, voted $350,000 bonds, water sys. $1,750,0. FWA. CD 10/17—ENR 10/19.

Puerto Rico, Arecibo—City, plans water pply sys. in several wards. $45,900.

Alta., Alliance—Municipality, WW sys. 0,000.

N. B., Glen Falls—Municipality, waterline m Saint John to here. $40,000.

N. S., Amherst—Town, U. G. Fuller, clk., stalling filtration plant, $50,000.

P. E. I., Charlottetown — Municipality, dnl. water supply. Over $75,000.

IDS ASKED

Bids Asked March 12

Ont., Leaside—Town, H. H. Talbot, mayor, V. Rogers, clk., and Members of Council, aside, installing 5,900 ft., 6 and 12 in. c.i. atermains, and approx. 5,700 ft. 12- to 36- sewers in Broadway Ave., Glenvale Blvd., ird Dr., Bessborough Dr., Annesley, Glenlen and Beaufield Aves. $75,000. Gore Storrie, 1130 Bay St., Toronto, engrs. D 12/28—ENR 1/4.

Bids Asked March 13

Minn., New Ulm—Pub. Utilities Comn., A. Sannwald, secy., municipal water treatent plant imprvs., furnishing, installing ater treatment equip., pumps, piping, conructing bldg. changes. $30,000. Plans deosit $30. R. D. Thomas & Associates, 1200 Ave. S., Minneapolis, engrs. CD 2/9—ENR /17.

Bids Asked

†Mass., Camp Edwards—U. S. Eng., 31 James Ave., Boston (selected list bidrs), watermains, No. 19-023-45-Neg-90. 0,000.

OW BIDDERS

†Mass., Camp Edwards—U. S. Eng., 31 St. mes Ave., Boston, water supply sys. addn., ec. 19-022-45-NEG 90, from Campanella Cardi Constr. Co., 50 Sprague St., Provience, R. I., **$61,855.** CD 2/26—ENR 3/1.

Location of ENR Correspondents

Symbols and Abbreviations Include:

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD Engineering New-Record Construction Daily

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED: (except Streets & Roads); BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR);

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Tex., Houston—City, M. H. Westerman, secy., City Hall, Feb. 14, 16 in. watermain in Rosedale, Ennis and Blodgett Sts., from J. G. Holland, 2739 Centenary St., **$65,868;** furnishing standby engine generating equip., from Standard Engine Co., Houston, **$53,912** est. $50,000. CD 1/31.

†Wash., Tacoma—City, City Hall, A. M. Angove, secy., Bd. Contrs. & Awards, Feb. 14, furnishing 3,600 ft. 30- to 54-in. steel pipe for Green River gravity supply line, Wash. 45-292-N, from Steel Tank & Pipe Co., 518 N.E. Columbia Blvd., Portland, Ore., **$52,635. FWA.** CD 2/2.

CONTRACTS AWARDED

†Neb., Crawford—City, watermains, Neb. 25-157, to Roush Constr. Co., Gillette, Wyo., **$120,940. FWA.** Bids 2/9. CD 1/17—ENR 1/25.

N. C., Charlotte—City, R. W. Flack, mgr., City Hall, WW imprvs., to A. H. Gulon & Co., Wilkinson Blvd., Charlotte, **$63,526.** Bids 2/13.

†Okla., Norman—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., addnl. water mixing facilities, Naval Ammunition Technical Training Center, NOY 11033, to Skaggs Constr. Co., 714 Braniff Bldg., Oklahoma City, **$62,476.**

R. I., Bristol—Bristol County Water Co., 553 Water St., water sys., incl. standpipe, replacing watermains new mains, repairing dam, incl. towns of Warren and Barrington. Owner builds. Over **$15,000.** C. A. Maguire & Associates, 1515 Turks Head Bldg., Providence, engrs. CD 11/27—ENR 11/30.

Tex., Monahans—City, E. Duffey, mayor, City Hall, WW imprvs., to McDonald Bros., 926 Valencia St., Dallas, **$63,036.** H. C. Dickson, Monahans, engrs.

†Virginia—U. S. Eng., Fort Norfolk, Norfolk, addnl. water supply facilities, appurtenant work, McGuire General Hospital, Chesterfield Co., Contr. W-44-110-eng-391, to Clairborne & Taylor, Inc., 417 S. 2 St., Richmond. Est. **$16,850.**

SEWERS, WASTE DISPOSAL

PROPOSED WORK

★**N. Y., Idlewild** — Dpt. Marine & Aviation, Pier A, North River, New York, Zone 4, bids soon drainage at Municipal Airport, $1,500,000. J. Downer, 30 Rockefeller Plaza, New York, Zone 20, engr. Horner & Shifrin, 803 Shell Bldg., St. Louis, Mo., assoc. engrs., for drainage work only. CD 1/24—ENR 2/1.

N. C., Chapel Hill—City, City Hall, bids soon sewage disposal plant, $106,000. Thos. D. Rose, c/o Gilbert C. White Co., Chapel Hill, engr.

Pa., Buck Hill Falls—Buck Hill Falls Co., C. R. Gillam, genl. mgr., C. M. Reese, supt. Constr., preliminary plans completed sewage disposal plant and sanitary sewers, $50,000. Albright & Friel, 1520 Locust St., Phila., engrs.

Pa., Kittanning—Kittanning Boro, c/o Boro Secy., 24 in. storm sewer in east bank of Allegheny River.

Tex., Houston—City, M. H. Westerman, secy., City Hall, bids soon sanitary sewer lines in areas between Orange St., Quitman St., Jensen Dr. and Abernathy St. $43,000.

Wis., Appleton—City, E. E. Sager, clk., City Hall, 15,945 ft. 10- to 27-in. vitr. clay or concrete sewers in area north of Wisconsin Ave. L. M. Schindler, Appleton, city engr. McMahon Engrg. Co., Menasha, consult. engr.

Alta., Alliance—Municipality, sewerage sys. $35,000.

N. S., Halifax—Municipality, sewer construction, $250,000; and sewer serving Dutch Village Rd. area, $70,000. R. M. McKinnon, City Hall, comr. and engr.

P. E. I., Charlottetown — Municipality, enlarging reservoirs at 2 sewer pump. stations. $50,000.

BIDS ASKED

Bids Asked March 12

Ont., Mount Elgin—J. D. Flanders, clk. Dereham Twp., Mount Elgin, 1,633 ft. 8 in. and 1,105 ft. 6 in. tile drain, for Kloepfer Drain; 2,137 ft. 8 in. tile drain, Austin J. Wikon Drain, 3,487 ft. open drain, James Gay exten., 1,380 cu. yd. excav. $40,000.

Bids Asked March 19

Ind., Indianapolis—Bd. P. Wks., S. Demming, chn., City Hall, remodeling for degreasing garbage disposal plant. $90,000. Russell B. Moore Co., 1456 N. Delaware St., engrs.

Bids Asked March 23

†Md., Hyattsville—Washington Suburban Sanitary Comn., Hamilton St., 150-ton refuse incinerator complete, incl. 50x130 ft. rein.-con., structural steel, tile bldg., roadways, drains, sewers, etc., Contr. 180. Plans deposit $10. H. R. Hall, Hyattsville, ch. engr.; adv. ENR 3/1.

Bids Asked About April 16

Calif., San Diego—City, Civic Center Bldg., approx. 2 mi. vitr. clay sanitary sewers vicinity of University Ave. and 50 St. $25,000. H. W. Jorgensen, City Hall, city engr.

LOW BIDDERS

Ill., Galesburg—City, City Hall, Feb. 19, furnishing, installing 5,286 lin. ft. 36 and 30 in. storm sewers, 15 manholes, from Gjellefald Constr. Co., Forest City, La., **$31,622.** Est. $25,000. A. Nordhielm, City Hall, city engr. CD 7/18—ENR 7/20.

Ill., Urbana—Urbana and Champaign Sanitary Dist., Champaign, Feb. 19, sewage treatment plant, incl. sedimentation tank, sludge digester tank, sludge pump. station,

SEWERS, Etc. (Low Bidders, Cont'd.)

etc., from John Traff Co., 3735 N. Clark St., Chicago, **$71,561.** Greeley & Hanson, 6 N. Michigan Ave., Chicago, engrs. CD 1/18—ENR 1/25.

CONTRACTS AWARDED

D. C., Wash.—District Comrs., District Bldg., Luzon Valley storm water sewers, vicinity of 14 St. and Underwood St. N.W., to R. Lombardi, 615 Real Estate Trust Bldg., Phila., Pa., **$28,795.**

Tex., Monahans—City, E. Duffey, mayor, City Hall, sewer imprvs., to E. L. Dalton, Great National Life Bldg., Dallas, **$70,352.** CD 2/9.

BRIDGES

PROPOSED WORK

Louisiana—The Texas Co., 919 St. Charles St., New Orleans, installing, drilling and boiler barges, clusters of piles, walkways, safety lines, etc. for use in connection with drilling and exploratory well for oil production in West Cote-Blanche Bay, near north shore, St. Mary Parish.

Pa., Franklin—Comrs. Venango Co., J. Frank Horner, comr., Court House, installing steel mesh floor on 13 St. bridge, $40,000.

Wis., Eau Claire—City, Eau Claire Co., and State, bridge replacing 4 span, 687 ft., concrete arch bridge over Chippewa River at Water St. A. R. Garnock, city engr.

Puerto Rico, Anasco—City, plans bridge and 442.72 meters road. **$26,000.**

Ont., Owen Sound—City, plans rein.-con. bridge over Pottawatamie River. About $35,000. W. H. Waddell, c/o owner, engr.

BIDS ASKED

Bids Asked March 28

La., Galliano—Police Jury LaFourche Parish, in office of Chas. J. Conlon, secy., Thibodaux, pontoon bridge over Bayou LaFourche. J. A. Lovell, Thibodaux, engr.

LOW BIDDERS

†D. C., Wash.—Pub. Roads Admin., Arlington, Va., Feb. 20, installing 2 steel struts between piers of bridge over Boundary Channel, Columbia Island, from Diamond Constr. Co., 2801-8 St. N.E., **$33,000.** CD 2/6—ENR 2/8.

Illinois—State Div. Hys., Springfield, Feb. 23, 3 bridges, Livingston and Grundy Counties, from Joliet Bridge & Constr. Co., 510 Morris Bldg., Joliet, **$35,717** * * * bridge, culvert, Lawrence Co., from C. J. Moritz, Inc., Register Bldg., Effingham, **$89,015** * * * 2 bridges, Livingston Co., from Thomas McQueen Co., 1313 Circle Ave., Forest Park, **$84,199.** W. W. Polk, ch. engr. CD 2/14.

Louisiana—State Dpt. Hys., Baton Rouge, Feb. 14, repairing Bayou Grosse Tete Bridge, Iverville Parish, from Bernard & Byrd, Staples Pake Bldg., Mobile Ala., **$30,250.** CD 1/31.

†Ore., Taft—Pub. Roads Admin., New P.O. Bldg., Portland, Feb. 14, 211 ft. rein.-con. bridge with timber piling over Drift Creek, on U. S. Route 101, from C. J. Eldon, 3161 N. Columbia Blvd., Portland, **$89,304.** CD 2/2, under Oregon, and CD 2/5—ENR 2/8 under Taft.

Wash., Tacoma—City, City Hall, Feb. 14, rein.-con. continuous hollow box girder viaduct on E. 30 St., from Rumsey & Co., 3321 Airport Way, Seattle, Zone 4, **$52,889.** B. Bantz, City Hall, city engr. CD 2/2.

CONTRACTS AWARDED

Ill., Chicago—Cook Co., County Bldg., viaduct, Burnham Ave. north of 147 St., to Chatham Paving Co., 7050 S. Wabash Ave., **$97,095.** Bids 2/19. CD 2/14.

†Ore., Portland—City, City Hall, constructing Kittredge Ave. overpass, to L. H. Hoffman, 715 S.W. Columbia St., **$69,141.** **FWA.** Awarded 2/16. CD 11/1—ENR 11/9.

STREETS AND ROADS

BIDS ASKED

Bids Asked March 1

N. Y., New York—President Manhattan Boro, Municipal Bldg., Zone 7, laying, relaying sidewalk and curbs, when and where directed, Contr. 400.

Bids Asked March 6

Iowa—State Hy. Comn., Ames, maintenance resurfacing 14.3 mi. Iowa 37 from Dunlap to Soldier, 17.4 mi. Iowa 183 from Harrison Co. to Ute, M-3326, Crawford and Monona Counties; 4.5 mi. Iowa 137 from end of pavement to Iowa 15, 2.6 mi. Iowa 146 from Poweshiek Co. to U. S. 63, 6.8 mi. Iowa 308 from Barnes City to U. S. 63, M-5282, Mahaska Co.; 16.6 mi. Iowa 10 from Orange City to U. S. 75, and from Iowa 33 to Iowa 143, and stockpile at junction Iowa 10 and U. S. 75, M-3327, O'Brien and Sioux Counties; 10.8 mi. Iowa 5 from LeMars to Iowa 29, M-3325, Plymouth Co. F. R. White, ch. engr.

Bids Asked March 7

Louisiana—State Dpt. Hys., New Orleans, shaping roadway, repairing drainage structures, sand clay gravel surfacing 16.9 mi. S.P. 31-06-06, Sulphur-DeQuincy Hy., State Route 104, Calcasieu Parish; gravel surfacing, shaping roadway 15.82 mi. S.P. 737-00-17, Contr. 2, Maneuver Area Roads (Group 12), Sects. 4, 5 and 10, on State Routes 143 and 249, Beauregard and Calcasieu Parishes; gravel surfacing, etc., 16.55 mi. S.P. 737-00-18 (Contr. 3), Maneuver Area Roads (Group 13) (Sect. 13) on State Route 52, Allen Parish. Plans deposit $1 each.

Bids Asked March 8

Nebraska—State Dpt. Road & Irrigation, W. G. Scott, engr., Lincoln, sand and gravel surfacing maintenance work, Div. 1, Lincoln-Prague, Patrol 21008; Div. 2, Valparaiso-North Bend, Patrol 21008; Valley-Prague, Fremont-Wahoo and Leshara south, Patrol 21032-21033; Valparaiso-Ulysses, Patrol 21043; David City-Shelby, Patrol 29043 and 29045; Oakland-Tekamah, Patrol 31035; Holdredge-Elm Creek, Patrol 61033; Minden-Macon, Patrol 61042.

Bids Asked March 9

Ia., Storm Lake—Supervs. Buena Vista Co., Storm Lake, 13,992 lin. ft. 6- to 18-in. drain tile for constructing Wrainage Dists. 174 and 175. Over $15,000. A. H. Cunningham, Storm Lake, co. engr.

Bids Asked March 14

Louisiana—State Dpt. Hys., Baton Rouge, shaping roadway, bituminous surface treatment on clam shell base course, etc., 1.756 mi. S. P. 46-04-18, Braithwite-Tanney Hy., State Route 1, Plaquemine Parish; sand clay gravel surface course 38.18 mi. S. P. 66-01-04, 66-02-05, 66-03-05, 139-06-05 and 858-03-03 Defense Access Army Reservation Proj. DA-WR 25 (1) Camp Polk area access roads, Vernon Parish; gravel surfacing, drainage structures, etc. 19.2 mi. S. P. 737-00-15 (Contr. 2) Maneuver Area Roads (Group 10), Sects. 3 and 4 on State Route 151 and 625 Rapides Parish; gravel surfacing 10.9 mi. S. P. 737-00-22, Contr. 2, Maneuver Area Roads (Group 7), Sects. 1 and 3 on State Route 475, Grant Parish. Plans deposit $1 each.

Bids Asked March 13

Kentucky—State Dpt. Hys., Frankfort, bituminous resurfacing 22.013 mi. Hardinsburg-Hawesville Rd. from Hardinsburg to the Court House in Hawesville, S. P. 14-173, S. P. 46-17, Breckinridge and Hancock Counties; 2.988 mi. U. S. 60 in Paducah from 8 and Jefferson Sts. to east corporate limit, S. P. 73-82, McCracken Co.; rock asphalt seal 0.766 mi. Frederica St. in Owensboro from Second to 13 Sts., S. P. 30-117, 30-237, Daviess Co.; 21.25 mi. Princeton-Marion Rd. from north corporate limit of Princeton to south corporate limit of Marion, S. P. 17-202, S. P. 28-66, Caldwell and Crittenden Counties; grading, draining 4.034 mi. Kettle-Bow School Rd. beginning at junction with Ky. 61 near Kettle, and exten. to Bow School, S. P. 29-167, Cumberland Co.; concrete pavement repair (patching) 42.935 mi. Wickliffe-Fulton Rd. from 4 and Court Sts., in Wickliffe to north corporate limit of Fulton, and Mayfield-Fulton Rd. from near Wingo to Hickman Co. line near Water Valley, S. P. 4-61, S. P. 20-4, S. P. 53-9, S. P. 53-129, S. P. 88-47, S. P. 42-288, Ballard, Carlisle, Hickman, Fulton and Graves Counties, all in Group 1 (1945); bituminous resurfacing 4.721 mi. Greenville-Central City Rd. from end of concrete road north of Greenville to Central City, S. P. 89-3; 2.9 mi. Central City-Calhoun Rd. from Central City to junction with Ky. 75, S. P. 89-243; 7.54 mi. Greenville-Drakesboro Rd. from Greenville to Drakesboro, S. P. 89-43; 1.388 mi. U. S. 62 through Greenville, S. P. 89-3, 89-163, 1.241 mi. U. S. 62 through Central City, S. P. 89-3, 0.187 mi. street in Greenville on Elkton Rd., S. P. 89-103; 0.778 mi. Graham-Earles-Millport Rd. S. P. 89-183, 2.1 mi. approaches to Rockport Bridge, S. P. 89-3, S. P. 92-144, Muhlenberg and Ohio Counties, all foregoing Group 2 (1945); 27.611 mi. Glasgow-Tompkinsville Rd. from Glasgow to Tompkinsville and incl. street in Tompkinsville, S. P. 5-92, S. P. 86-234, 6.5 mi. Burkesville-Glasgow Rd. (2 mi. section near the Metcalf Co. line), and the Edmonton-Greensburg Rd. from Edmonton to end of bituminous surfacing, S. P. 29-127, 85-4, 85-44, Barren, Cumberland, Metcalfe, and Monroe Counties, both Group 3 (1945); 37.852 mi., incl. Eminence-Smithfield-Crestwood Rd. from Eminence to Jefferson Co. line west of Crestwood, S. P. 52-227, S. P. 93-76, S. P. 93-116, S. P. 93-216, 13.158 mi. New Castle-LaGrange Rd. from New Castle to LaGrange, S. P. 52-247, S. P. 93-36, 2.948 mi. Sligo-New Castle Rd. from Sligo to junction with Ky. 22, S. P. 52-267, Henry and Oldham Counties, all foregoing Group 4 (1945); 26.161 mi. McKee-Richmond Rd. from McKee to Kingston, S. P. 55-9, S. P. 102-37, S. P. 76-51, S. P. 76-71, 5 mi. Berea-Big Hill Rd. from Berea to Big Hill, S. P. 76-91, 4 mi. Bobtown-Berea Rd. from Bobtown to Berea, S. P. 7-51, Jackson, Madison and Rockcastle Counties, all foregoing Group 5 (1945); 7.4 mi. Manchester-McKee Road from Manchester to Burning Springs, S. P. 26-5, 9.435 mi. from Manchester to Laurel Co. line, incl. street in Manchester, S. P. 26-5, S. P. 26-65, Clay Co., both group 6 (1945); 5.60 [illegible] Barbourville - Dishman Springs - [illegible] Rd. from in Barbourville to Walker Memorial Park, S. P. 61-190, 2.824 [illegible] ville-Artemus Rd. from U. S. 25-E and [illegible] toward Artemus, S. P. 61-130 Knox Co., Group 7 (1945); 27.5 mi. Shelbiana-[illegible] State Line Rd. and sections on Nigh-[illegible] Rd. S. P. 98-143, S. P. 98-152, Pike Co., Group 8 (1945).

LOW BIDDERS

Illinois—State Div. Hys., Springfield, Feb. 23, imprv. 2.84 mi. Jefferson Co., from [illegible] A. Mayes Constr. Co., Albion, **$75,578.** W. Polk, ch. engr. CD 2/14.

Louisiana—State Dpt. Hys., Baton Rouge, Feb. 14, imprv. 14.8 mi. Vernon Parish, from W. R. Aldrich & Co., Leesville, **$64,181.** 4 mi. Vernon Parish, from Barber Bros. Co., Reymond Bldg., Baton Rouge, **$47,826.** 10.6 mi. Sabine and Vernon Parishes, from T. W. Kleinpeter, 404 Thatcher Dr., Baton Rouge, **$54,781.** CD 2/6—ENR 2/8.

Louisiana—State Dpt. Hys., Baton Rouge, Feb. 21, imprv. 10.9 mi. Vernon Parish, from T. L. ames & Co., Inc., Ruston, **$[illegible]** CD 2/6—ENR 2/8.

CONTRACTS AWARDED

N. S., Halifax—Municipality, concrete sidewalks, curbs and gutters, day labor, **$[illegible]** R. M. McKinnon, City Hall, comr. and engr.

Ont., Cornwall—Dundas-Glengarry counties, Cornwall, reconstructing [illegible] roads, day labor, **$180,000.** J. Cameron, County Bldg., Cornwall, engr.

Ont., Cumberland—Cumberland Twp., R. Kennedy, clk., graveling road, day labor, **$25,000.** M. J. Nolan, Hammond, engr.

Ont., Owen Sound—Grey Co., A. M. Hersford, clk., Owen Sound, reconstructing repairing roads, day labor, **$150,000** voted.

EARTHWORK, WATERWAYS

PROPOSED WORK

La., Patterson—The Sun Oil Co., Beaumont, **Tex.**, dredging slip and channel and installing maintenance of oil loading wharf, walkway and three 5-pile clusters in Berwerty Bayou approx. 13½ mi. southerly from Patterson.

Ore., Portland—City, City Hall, replacing fender timbers along Willamette River harbor wall, Alder to Salmon Sts. **$15,900.** S. Morrow, City Hall, engr.

★**Ore., The Dalles**—The Dalles Irrigation Cooperative, The Dalles, pumping project, irrigating 7,000 acres fruit and vegetable land, $595,000. G. C. Arrowsmith, Bonneville Power Admin., 811 N.E. Oregon St., Portland, engr.

Pa., Scranton—Pennsylvania State Water & Power Resources Bd., J. A. Kelb, secy. Dept. Forests and Waters, chn., flood control, $175,000.

R. I., Newport—City, Dpt. P. Wks., City Hall stone sea walls, 4 sections. Over $25,000.

Tex., Houston—City, plans open ditching, $20,000 appropriated.

Wash., Renton—Boeing Aircraft Corp., Seattle, soon lets contract, revetments at Boeing Renton plant. $80,000.

Que., Quebec City—Anglo-Canadian Pulp & Paper Mills, Ltd., Quebec City, construct-ing, replacing seawalls. $26,000.

BIDS ASKED

Bids Asked March 21

†Nebraska—Bureau Reclamation, Dpt. Interior, W. R. Young, ch. engr., Denver, Colo., furnishing, del. f.o.b. cars at shipping point or f.o.b. cars at Hemingford, one 10 ft. by 6 ft. radial gate with rollers, pin bearings, wall plates, gate sill and one 3,000 lb. manually-operated radial-gate hoist for installation in main canal wasteway at station 70 plus 20, Mirage Flats Project, Spec. 1797-D.

LOW BIDDERS

†N. M., Tucumcari—Bureau Reclamation, Dpt. Interior, **Feb. 12**, structures, laterals and sub-laterals, Bell, Elliot, Roberts, State, Jack, Liberty, Young, Coulter, Burley and Bend Counties, Spec. 1093, from Lynn Engineering Co., 2683 S. 13 St., Salt Lake City, Utah, **$130,041.** (**Correction**—low bidder, CD 2/19—ENR 2/22 under LB.

CONTRACTS AWARDED

Kan., Rossville—Tri-County Drain Dist. of Shawnee Co., Topeka, levee work on north bank of river, Sect. 1, to T. F. Marbut, Emporia, **$55,000*****dikes on river, Sect. 2, to M. W. Watson, National Bank Bldg., Topeka, **$36,399*****creek imprvs., Sect. 3, to A. G. Sherwood, Independence, **$22,993*****[illegible] work, Sect. 4, to Kellner Jetties Co., 415 E. Gordon St., Topeka, **$29,469.** Grand total, $143,861. Bids 2/8. CD 2/1.

La., Point-a-La Hache—Plaquemine Parish Police Jury, Point-a-La Hache, approx. 30,350 lin. ft. canal sweeping and widening and levee repairs on Buras to Fort Jackson (Back Protection Levee) to L. P. Davis Constr. Co., Chalmette, at 23c. per cu. yd. Bids 2/6, awarded 2/20. CD 1/16—ENR 1/26.

†Miss., Pascagoula—U. S. Eng., Grant Bldg., west of Westwood St., Mobile, Ala., dredging in Pascagoula Harbor, to Hill Dredging Corp., Ventnor, N. J., **$31,790.** Bids 2/13.

LATIN AMERICA

...azil—Republic of Brazil, Rio de Janeiro, ...rifying 37 mi. railroad between Jundiai ... Sao Paulo, to Sao Paulo Railway Co., ... Sao Paulo. Est. $400,000. Ministry of ...sportation & Public Works, Rio de ...iro, engr.

...azil, Mambucaba—Central do Brasil ...way, Rio de Janeiro, plans hydraulic ...lopment, $1,000,000; branch railway, ... $500,000.

...azil, Ouro Preto—Republic of Brazil, ... de Janeiro, plans developing water ...er facilities. $700,000. Dpt. P. Wks., Rio ...Janeiro, engr.

...azil, Rio de Janeiro—Companhia Carioca ...strial, Rio de Janeiro, plans plant exten. ...000.

...azil, Sao Paulo—Industrias Reunidas ...Matarazzo, Sao Paulo, plant expansion. ...000.

...azil, Saudade—Central do Brasil Rail- ... Rio de Janeiro, widening gage from 1 ...er to 1.6 meters, other imprvs. on track ... Saudade to Bananal. $750,000.

... W. I., Trinidad—Municipality, plans ... bed, 2 story tuberculosis hospital, incl. ...vate wing of 36 beds, nurses' home, etc. ...,000.

...hile, Chilian—Municipality, plans 728 ...ses. $197,000.

...hile, Concepcion—Municipality, plans ...ket and refrigeration plant. $100,000.

...hile, Puente Alto—Caza de Habitacion ...pular, Puente Alto, plans 300 dwellings. ...0,000.

...hile, Santiago—Fomento Corp., Santiago, ...s refrigeration plant. $150,000.

...hile, Santiago—Fomento Corporation, ...tiago, plans canals and irrigation sys- ...s. $3,000,000.

...hile, Santiago—Municipality, plans com- ...rcial and residential bldg. 40,000,000 pesos.

...hile, San Vicente—Fomento Corp., San- ...go, plans refrigeration plant. $100,000.

...olombia, Bogota—Industria Colombiana ... Rayon Viscosa, Bogota, plans plant ex- ...nion. $100,000.

...olombia, Bogota — Municipality, plans ...ter facilities imprvs., incl. reservoir exten. ...000,000 Pesos appropriated.

...olombia, Bogota—Pan American Airways, ...gota, airport exten., to Aeropuerto de ...gota Ltd., Bogota. Est. $70,000. CD 1/10 ...ENR 1/18.

...olombia, Leticia—Pan American Airways, ...gota, airport, to Aeropuerto de Bogota, ...d., Bogota. Est. $60,000.

...Costa Rica, Ahangares—La Luz Mines ...d., 25 W. King St., Toronto, Ont., Canada, ...ns diamond drilling, etc. $60,000.

...French Guiana, Cayenne—Colonial Admin- ...tration, Cayenne, plans wharf. $93,000 ...ted. Dpt. Works, Cayenne, engr.

...French Guiana, Cayenne—Colonial Admin- ...tration, Cayenne, will reconstruct road be- ...een Cayenne and St. Laurent, by day ...bor. $500,000. Available. Dpt. Wks., ...ayenne, engr.

...Mexico, Matamoros—City takes bids within ... days school, playgrounds. $200,000.

...Mexico, Mexico City—Astronomic Society ... Mexico, Tacubaya, D. F., plans astronomi- ...l observatory for scientific groups and ...neral public. $250,000.

...Mexico, Mexico City—Cia de Productos ...lectricos, GH, SA., Ejido, 19-12, Mexico, ...F., plans plant manufacturing electric ...ansformers. $125,000.

...Mexico, Mexico City—Municipal Govt., ...alacio Municipal, plans 26 schools. ...,150,000.

...Mexico, Mexico City—E. and C. Prado de ... P., Tonala, 22, Mexico, D. F., plans food ...ant. $100,000.

...Mexico, Mexico City—Productors de Papel, ...A., 20 de Noviembre, 82-112, Mexico, D. F., ...ans paper and wood mfg. plant. $150,000.

...Mexico, Mexico City—Republic of Mexico, ...exico City, plans completing Lerma River ...ater supply project 10,000,000 Pesos. Dpt. ...Wks., Mexico City, engr.

...Mexico, Mexico City—Republic of Mexico, ...exico City, plans office bldg. on Plaza ...onstitution. 750,000 Pesos. Ministry of ...ublic Works, Mexico City, engr.

...Mexico, Mexico City—Republic of Mexico, ...exico City, plans water supply sys. extens. ...r Federal Dist. of Mexico. 12,987,700 Pesos ...ppropriated. Ministry of Public Works, ...exico City, engr.

...Mexico, Mexico City—Republic of Mexico, ...exico City, plans sewers and drainage in ...ederal Dist. of Mexico. 10,000,000 Pesos ...ppropriated. Ministry of Public Works, ...exico City, engr.

...Mexico, Mexico City—Republic of Mexico, ...exico City, plans electrification scheme. ...er $200,000. Ministry of Agriculture & ...evelopment, Mexico City, engr.

...Mexico, Oaxaca—Republic of Mexico, Mex- ...o City, plans flood control, river regulariza- ...on and dredging. $250,000. Ministry of ...arine, Mexico City, engr.

Mexico, Puebla—Republic of Mexico, Mexico City, plans electrification scheme. Over $200,000. Ministry of Agriculture & Development, Mexico City, engr.

Mexico, San Pedro de Los Pinos—Bicicletas Ago, S.A., Ave. 3, 56, San Pedro de los Pinos, D.F., plans bicycle mfg. plant. $125,000.

Mexico, Tacubaya—Enrique Carza, Agricultura, 43, Tacubaya, D.F., plans electric transformer mfg. plant. $100,000.

Mexico, Tlalnepantla—State Government, Palacio del Estado, Toluca, plans 200 bed general hospital. $415,000.

Mexico, Vera Cruz—Republic of Mexico, Mexico City, plans flood control, river regularization and dredging. $200,000 plus. Ministry of Marine, Mexico City, engr.

Mexico, Vera Cruz—Republic of Mexico, Mexico City, plans electrification scheme. Over $300,000. Ministry of Agriculture & Development, Mexico City, engr.

Nicaragua, Corinto—Republic of Nicaragua, Managua, plans harbour works. 598,900 Cordobas voted. Dept. Development & Public Works, Managua, engr.

Nicaragua, La Luz—La Luz Mines Ltd., 25 W. King St., Toronto, Ont., Canada, plans diamond drilling on footwall area of main ore zone. $75,000.

Nicaragua, Managua—Republic of Nicaragua, Managua, plans waterworks imprvs. 646,000 Cordobas voted. Dpt. Development and Public Works, Managua, engr.

Nicaragua, Managua—Republic of Nicaragua, Managua, will construct highway, by day labor. 500,000 Cordobas. Ministry of Development & Public Works, Managua, engr.

Nicaragua, Managua—Republic of Nicaragua, Managua, plans light and power development. 2,025,800 Cordobas voted. Dpt. Development & Public Works, Managua, engr.

Nicaragua, Managua—Republic of Nicaragua, Managua, plans by Dpt. P. Wks., Managua, 6,000 dwellings. $1,800,000.

Panama, Panama City—Municipality, plans abattoir, $100,000 voted.

Panama, Panama City—Republic of Panama, Panama City, plans National Airport. $4,000,000.

PUBLIC BUILDINGS

PROPOSED WORK

†Calif., Albany—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 100 unit family dwellings, Calif. 4035-N.

†Calif., Barstow—Pub. Housing Auth., NHA, Phelan Bldg., 760 Market St., San Francisco, 44 family dwelling units, Calif. 4989-N.

†Calif., El Centro—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 150 unit family dwellings, Calif. 4028-N, for Navy.

†Calif., Fallbrook—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 40 unit family dwellings, Calif 4990-N, for Navy.

†Calif., Inyokern—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 120 unit family dwellings, Calif. 4991-N, for Navy.

†Calif., Los Angeles—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 270 unit family dwellings, Los Angeles Harbor area, Calif. 4992-N, for Navy.

†Calif., Mojave—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 40 unit family dwellings, Calif. 4993-N, for Navy.

†Calif., Oakland—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 56 unit family dwellings, Calif. 4034 N.

†Calif., Oakland—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 56 unit family dwellings, Calif. 4909 N.

†Calif., Oakland—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 72 unit family dwellings, Calif. 4955 N.

†Calif., Oceanside—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 200 unit family dwellings, Calif. 4994-N, for Navy.

†Calif., San Bruno—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 152 unit family dwellings, Calif. 4033N.

†Calif., San Diego—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 80 unit family dwellings, San Diego-Linda Vista, Calif. 4997-N; 300 unit family dwellings, San Diego-Coronado, Calif. 4996-N; 720 unit family dwellings, San Diego, Calif. 4995-N, all foregoing for Navy.

†Calif., San Francisco—Pub. Housing Auth., 760 Market St., 145 unit family dwellings, San Francisco-Suison Bay, Calif. 4020-N; 190 unit family dwellings, San Francisco-East Bay-Pleasanton, Calif. 4988-N; 190 unit family dwellings, San Francisco-North Bay-Vallejo, Calif. 4999-N; and 560 unit family dwellings, San Francisco-East Bay-Alameda-Oakland, Calif. 4998-N, all foregoing for Navy.

†Calif., San Francisco — Pub. Housing Auth., NHA, Phelan Bldg., 720 Market St., 815 family dwelling units, Calif. 4024N.

†Calif., San Francisco—Pub. Housing Auth., NHA, 760 Market St., 144 unit family housing, Calif. 4030N; 136 unit family dwellings, Calif. 4032N.

†Calif., Stockton—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 150 unit dormitory housing, Calif. 4036.

†Calif., Stockton—Pub. Housing Auth., NHA, Phelan Bldg., 760 Market St., San Francisco, plans by E. G. Ernst, 561 E. Harding Way, and J. U. Clowdsley, Exchange Bldg., 200 temporary family dwelling units, Calif. 4978; 50 family trailer units, utilities, Calif. 4981; 225 dormitory units, Calif. 4979. CD 1/26—ENR 2/1.

†Colo., Colorado Springs—U. S. Eng., 909 17 St., Denver, altering bldgs. for hospital. $100,000 plus.

★**†Colo., Denver**—Federal Works Agency, 18 and F Sts. N.W., Wash. 25, D. C., mint addn. $1,000,000.

†Colo., Fort Logan—U. S. Eng., 909 17 St., Denver, altering convalescent hospital. $100,000 plus.

★**†Conn., West Haven (br. New Haven)**—Armstrong Rubber Co., Elm St., preparing plans 4 story, bsmnt., sub-bsmnt, rein.-con. plant, incl. office and storage facilities, Elm St. $2,000,000. Defense Plant Corp. will finance. Fletcher Thompson, Inc., 211 State St., Bridgeport, engrs.

†Del., New Castle—U. S. Eng., 120 Wall St., New York, Zone 5, N. Y., bids soon repairing officers' service club. $120,000.

†D. C., Wash.—Bd. Educ., District Bldg., making plans school, Stanton Rd., D.C. 49190. $361,500. **FWA.**

Ga., Thomaston—City Bd. Educ., F. A. Andrews, chn., Thomaston, plans by Wm. J. J. Chase, 140 Peachtree St., Atlanta, 2 story, bsmnt. school.

★**†Ill., Ottawa**—Inland Rubber Corp., 146 W. 27 St., Chicago, Ill., plant complete with equip., etc. $7,000,000. Defense Plant Corp. will finance.

★**†Ind., Indianapolis**—U. S. Eng., 612 Federal Bldg., Louisville, Ky., forging and machining plant at Fall Creek Shell Plant. $980,000.

Ind., Portland—Bd. P. Wks., C. Wilson, secy., City Hall, making plans municipal power plant addns., imprvs., incl. brick, steel, concrete water tube boiler, stoker, turbo-generator. $150,000. Bevington, Taggart & Fowler, Inc., 730 Ind. Pythian Bldg., Indianapolis, engr.

†Ky., Louisville—Pub. Housing Auth., NHA, 2073 E. 9 St., Cleveland 15, O., 240 unit single person housing, Ky. 12205; 650 unit family portable housing, Ky. 12206; 200 unit family stop-gap housing, Ky. 12207; 550 unit family portable housing, Ky. 12208.

Me., Passamaquoddy—State Dpt. Health & Welfare, State House, Augusta, Indian Reservation repairs and 75 new units, Passamaquoddy and Penobscot Reservation. $300,000.

†Md., Fort Howard—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., making plans nurses quarters at Veterans Hospital. $175,000.

†Mass., Camp Edwards—U. S. Eng., 31 St. James Ave., Boston, plans completed, soon lets contract general alterations, bldgs., No. 19-023-45-Neg-88. $200,000.

Mich., Pontiac—Michigan State Hospital, Pontiac, plans by Wm. C. Zimmerman, Pontiac, and Derrick & Gamber, 515 Hammond Bldg., Detroit, brick, steel, stone, concrete hospital addn., alterations. $200,000. CD 1/25—ENR 2/1.

Neb., Lincoln—City, City Hall, cooling tower at A St. power plant. $42,000. D. L. Erickson, City Hall, city engr.

†N. J., Fort Dix (br. Trenton)—U. S. Eng., 120 Wall St., New York 5, N. Y., bids soon altering barracks into hospital. $293,700. B. S. Gruzen, 921 Bergen Ave., Jersey City, archt.

★**†N. Y., Castle Point**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., addnl. bldg. $2,000,000.

†N. Y., New York—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., laundry bldg. alterations, addn. $45,000.

†N. Y., Yaphank—U. S. Eng., 120 Wall St., New York, Zone 5, bids soon hospital. $300,000.

★**†O., Cambridge**—U. S. Eng., 925 New Federal Bldg., Pittsburgh, Pa., heavy-heavy truck rim plant at Firestone Truck Rim Project. $1,150,000.

★**†O., Newark**—Pharis Tire & Rubber Co., F. Marshall, pres., Newark, truck tire plant. $2,250,000. Defense Plant Corp. will finance.

†Ore., Astoria—Pub. Housing Auth., NHA, Skinner Bldg., 5 Ave. and Union St., Seattle 1, Wash., plans by Wick & Wick, Astoria, 10 unit housing, Ore. 35312N. $37,500.

†Ore., Klamath Falls — Pub. Housing Auth., NHA, Skinner Bldg., 5 Ave and Union St., Seattle 1, Wash., plans by H. Perrin, Underwood Bldg., 100 unit housing, Ore. 35313N. $375,000.

PUBLIC BLDGS. (Proposed Work, Cont'd.)

†**Pa., Bellefonte**—Pub. Housing Auth., NHA, 270 Bway., New York 7, N. Y., 60 unit family stop-gap housing, Pa. 36454.

†**Pa., Contesville**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., kitchen and dining hall alterations, Veterans' Hospital. $15,000.

†**Pa., Valley Forge (P. O. Phoenixville)**—U. S. Eng., Standard Oil Bldg., Baltimore, Md., preparing plans hospital addn., WAC bldg.

★†**Pa., Washington**—U. S. Eng., Standard Oil Bldg., Baltimore, Md., converting plant for forging facilities. $725,000.

†**Tex., Amarillo**—Pub. Housing Auth., NHA, 1411 Electric Bldg., 7 and Lamar Sts., Fort Worth, Zone 2, 500 unit family portable housing, Tex. 41693.

Tex., Dallas—Vickery Independent School Dist., Hillcrest Rd., plans by M. Lemmon, Tower Petroleum Bldg., school. $160,000 bonds voted. CD 2/13—ENR 2/15.

†**Tex., Fort Sam Houston**—U. S. Eng., Fort Sam Houston, indefinitely postponed bids to have been opened Feb. 20, bldg. alterations and addns. for A.G. and S.F. Redistribution Station, Serial No. W-41-154-45-73. CD 2/13—ENR 1/18.

†**Tex., Harlingen**—Pub. Housing Auth., NHA, 1411 Electric Bldg., 7 and Lamar Sts., Fort Worth, Zone 2, plans by Hedrick & Lindsley, 811 Southern Standard Bldg., Houston, 300 unit family trailer housing, Tex. 41-692. CD 2/8—ENR 2/15.

†**Tex., Houston**—Port Houston Iron Works, 7222 S. Harbor St., converting plant bldg. into shell (ordnance) mfg. plant. $150,000. Defense Plant Corp. will finance.

†**Tex., McKinney**—U. S. Eng., 231 W. Main St., Denison, addnl. housing, at Ashburg General Hospital. $175,000.

★†**Tex., Sweetwater**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., hospital bldgs., facilities, utilities, etc. Over $1,000,000.

†**Wash., Anacortes**—Pub. Housing Auth., NHA, Skinner Bldg., 5 Ave. and Union St., Seattle, Zone 1, plans by Stuart, Kirk & Durham, 4 and Cherry Bldg., Seattle, Zone 4, 65 unit housing on Whidbey Island, Wash. 45214N. $243,750. CD 2/16—ENR 2/22.

†**Wash., Forks**—Pub. Housing Auth., NHA, Skinner Bldg., 5 Ave and Union St., Seattle, Zone 1, plans by J. L. Holmes, Old Times Bldg., Seattle, Zone 1, 20 unit housing, Wash. 45315N.

†**Wash., Seattle** — Pub. Housing Auth., NHA, Skinner Bldg., 5 Ave. and Union St., Zone 1, plans by Jones, Bouillon, Thiry & Sylliaasen, Hoge Bldg., 2 and Cherry Sts., Zone 4, 100 unit housing, Magnolia Bluff Dist. $375,000.

★†**Wash., Seattle**—Pub. Housing Auth., NHA, Skinner Bldg., 5 Ave. and Union St., Seattle, Zone 1, plans by McClelland & Jones, Republic Bldg., 3 and Pike Sts., Zone 1, 315 unit housing, near Sand Point Naval Air Station. $1,181,250. CD 2/16—ENR 2/22.

†**Wash., Shelton** — Pub. Housing Auth., NHA, Skinner Bldg., 5 Ave. and Union St., Seattle, Zone 1, plans by Morrison & Jacobsen, 719 2 Ave., Seattle, Zone 4, 20 unit housing, Wash. 45317N. $75,000.

Wash., Spokane—School Bd., J. Shaw, supt., W. 503 4 St., plans by Whitehouse & Price, Hutton Bldg., new bldg. at Field School, near Wellesley and Ash Sts. $150,000.

Wash., Sunnyside—School Bd., Sunnyside, plans by W. Rothe, Liberty Bldg., Yakima, brick school. $175,000. Approved $100,000 bond issue.

Wash., Tacoma—City, City Hall, power distr. substation near 48 St. and S. Cushman Ave. $60,000. B. Bantz, City Hall, city engr.

†**Wis., Wausau** — Marathon Foundry & Machine Co., 840 Henrietta Ave., plant bldg. Approx. $40,000. Defense Plant Corp. will finance.

★**Man., Winnipeg** — Municipality, medical centre in vicinity of Winnipeg General Hospital. $600,000.

Ont., London—Wartime Housing, Ltd., 55 York St., Toronto, 100 houses on outskirts of city. $350,000-$400,000.

Ont., St. Catherine—Bd. Educ., 7 Queens St., plans by T. H. Wiley, 13 Dacotah St., vocational school addn. $150,000.

Ont., St. Catharines—St. Catharines Bd. Educ., F. E. Hetherington, chn., 7 Queen St., plans by F. Page, 20 St. Clair Ave. W., Toronto, Victoria School addn. $320,000.

Ont., Sarnia—Bd. Educ., Sarnia, 24 room technical and 12 room schools. $270,000.

Ont., Toronto—City, R. H. Saunders mayor, central garage. $150,000.

P. E. I., Charlottstown—Municipality, hospital addn., altering recently purchased property for nurses' home. $200,000.

★**Que., Bordeaux (Montreal)**—Province of Quebec, c/o Dpt. of Attorney-General, Quebec City, plans by Dpt. P. Wks., Quebec City, building for criminal insane. $500,000.

Que., Courville—Dpt. Veteran's Affairs, Ottawa, Ont., plans by L. P. Gauthier, 211 Confederation Bldg., 1253 McGill College Ave., Montreal, 65 houses, near Montmorency River. $264,000.

★**Que., Joliette**—Les Suoers de la Providence, Joliette, 4 story, bamnt., 50 x 200 ft., rein.-con., slab, stone hospital, Manseau St. $500,000. CD 10/17—ENR 10/19.

Que., Knowlton—Municipality, high school. $175,000. CD 12/28—ENR 1/11.

★**Que., Quebec City**—University of Laval, 6 University St., university addn. $800,000.

Que., St. Georges East—Municipality, plans by W. Gregoire, 86 N. Wellington St., Sherbrooke, hospital. $250,000.

Que., Verdun (Montreal)—Catholic School Comn., Verdun, school. $150,000.

Sask., Estevan—Province of Saskatchewan, Regina, plans plant exten., imprvs. $75,000. Saskatchewan Power Comn., Regina, engr.

BIDS ASKED

Bids Asked March 6

†**N. Y., Sunmount**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., altering Kitchen and Mess Bldg. 3.

Bids Asked March 8

Mo., Webster Groves (St. Louis, Zone 19, P. O.)—School Dist. of Webster Groves, Bd. Educ., F. L. Wright, pres., and L. A. Steger, supt. Schools, 42 Selma Ave., 2 story, bamnt., brick, concrete school, North Elm St. between Ravine St. and Fox Pl. Plans deposit $25. Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, engr.-archt. CD 12/29—ENR 1/4.

Bids Asked March 9

†**Wash., Tacoma**—Tacoma Housing Auth., Provident Bldg., 192 unit dormitory housing, Market and 17 Sts., Wash. 45307, for NHA. $200,000. Tacoma Architect's Assn., Provident Bldg., archts. CD 2/9—ENR 2/15.

Bids Asked About March 12

†**Mich., Ypsilanti**—City, 1 story, 79x93 ft., recreation bldg., Mich. 20-377. **FWA.** CD 10/27—ENR 11/2.

Bids Asked March 15

Ore., The Dalles—Port of The Dalles, The Dalles, grain elevator addn., steel reinforced. $150,000. E. F. Carter, Metropolitan Bldg., Vancouver, B. C., engr. CD 2/7—ENR 2/15.

Bids Asked March 26

†**Kan., Junction City**—Pub. Housing Auth., NHA, 1411 Electric Bldg., 7 and Lamar Sts., Fort Worth 2, Tex., 90 unit housing, Kan. 14-149. $150,000. Lorenz & Schmidt, Wichita, Kan., archts. CD 2/8—ENR 2/15.

Bids Asked March 27

†**Mass., Bedford**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., addnl. facilities, Women Patients' Bldg. 70; Pump House Bldg. 71. CD 2/1—ENR 2/8.

Bids Asked April 4

★**N. Y., Sonyea**—Dpt. Mental Hygiene, State Office Bldg., Albany, Zone 1, female infirmary bldg. $650,000. Comr. Architecture, State Office Bldg., Albany, Zone 1, archt.

Bids Asked

†**Mass., Fitchburg**—U. S. Eng., 31 St. James Ave., Boston (selected list bidders), bldg. addn., No. 19-023-45-Neg-93. $25,000.

†**Mass., Framingham**—U. S. Eng., 31 St. James Ave., Boston, bldgs., No. 19-023-45-Neg-94. $50,000.

LOW BIDDERS

★†**Calif., Berkeley**—Bd. Trustees Berkeley General Hospital, A. E. Maffly, supt., 2001 Dwight Way, Feb. 23, 3 story, bamnt., rein.-con. hospital addn., Calif. 4-646-N, from W. F. Lynn, 3848 Grand Ave., Oakland, $11,500. **FWA.** CD 2/14.

†**Calif., Richmond**—Pub. Housing Auth., NHA, Phelan Bldg., 760 Market St., San Francisco, Feb. 14, firesafing measures for 4 dormitory bldgs., Calif. 4177, from Biltwell Constr. Co., 4745 Geary Blvd., San Francisco, $51,977. CD 1/19—ENR 1/25.

†**Calif., San Francisco**—Franciscan Sisters of the Sacred Heart, St. Joseph's Hospital, Park Hall and Buena Vista Ave., nurses home and training facilities, Calif. 4-667, from Barrett & Hilp, 918 Harrison St., $234,560. **FWA.** CD 2/5—ENR 2/8.

†**Ill., Galesburg**—U. S. Eng., 520 Merchandise Mart, Chicago, hospital addn., from B. W. Handler Co., 10E. 13 St., Chicago, $309,990.

†**Md., Bethesda (br. Wash., D. C.)**—Pub. Bldgs., Admin., 18 and F Sts., N.W., Wash. 25, D. C., Feb. 16, Public Health Service Bldg. 8, Md. 18-045, from Jefferson Constr. Co., 52 Washington Ave., Chelsea, Mass., $169,484. **FWA.**

†**Mass., Framingham**—U. S. Eng., 31 St. James Ave., Boston, Feb. 23, concrete, bldgs. at Army Hospital, Spec. 19-023-45-NEG 89, from M. Slotnick, 333 Washington St., Boston, $178,666.

★†**Miss., Gulfport**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., Feb. 20, addnl. bldgs., utilities, Veterans Hospital, from R. P. Farnsworth & Co., 1515 S. Salcedo St., New Orleans, La., $511,500. CD 2/13.

†**N. Y., Utica**—U. S. Eng., 120 Wall St., New York, Zone 5, Feb. 23, addnl. housing at Rhoads General Hospital, from John A. Johnson Co., 268 41 St., Brooklyn, Zone 32, $455,586.

†**N. Y., West Point**—U. S. Eng., 120 Wall St., New York, Zone 5, Feb. 20, storage bldg., filtration plant addn., etc., from National Structures Corp., 10 E. 40 St., New York, Zone 17 (B). $139,600. CD 2/15.

Pa., Ephrata—C. Fuehrer, mgr. Ephrata Boro, 21 E. Locust St., Feb. 12, municipal light and power plant, from Herman Wohlsen's Sons, Woodworth Bldg., Lancaster, $117,000. Louis T. Klauder & Assoc., Liberty Bldg., Phila., engrs. CD 1/17—ENR 1/25.

Tex., El Campo—City, City Hall, Feb. 16, concrete drying and bulk storage rice plant, etc., from W. D. Peck, Citizens State Bank Bldg., Houston, $65,336. CD 2/5.

†**Tex., McKinney**—U. S. Eng., 231 W. Main St., Denison, Ashburn General Hospital addn., from T. C. Bateson, 4507 Brookview St., Dallas, $163,000.

†**Tex., Temple**—U. S. Eng., Fort Sam Houston, Feb. 14, orthopedic shop, central meat preparation room and library bldg. extens., McCloskey Hospital, Serial No. W-41-154-45-76, from Smith Building Co., Inc., 2515 Franklin Ave., Waco, $41,300. CD 1/25—ENR 2/1.

†**Va., Staunton**—U. S. Eng., 21 St. and Virginia Ave. N.W., Wash. 25, D. C., Feb. 16, Woodrow Wilson General Hospital addns., incl. 2 WAC barracks, 9 barracks for enlisted men, mess bldg., recreation and administration bldg., from W. M. Chappell, 316 Randolph Pl. N.E., Wash., D. C., $264,000.

★†**Wash., Seattle**—King Co. Housing Auth., 4 and Cherry Bldg., Zone 4, Feb. 20, 256 unit war apartments and recreation bldg., near South Park, Wash. 45310, for NHA, from Nelse Mortensen & Co., 1021 Westlake Ave. N., Zone 9, $598,627. CD 1/19—ENR 1/25.

★†**Wyo., Laramie**—Bureau of Mines, Dpt. Interior, c/o H. P. Rue, contg. officer, Laramie, Feb. 21, 3 story, 45 x 180 ft., main sect. and two 1 story, 45 x 85 ft. wings, stone rein.-con. laboratory bldgs., from E. C. Nickel, 1401 Rancho Rd., Arcadia, Calif., $574,000. CD 1/23—ENR 1/25.

†**Wash., Seattle**—Seattle Housing Auth., 825 Yesler Way, Zone 4, Feb. 16, 144 war apartments and recreational bldg., Michigan Ave. and Corson Sts., Proj. 45302, for NHA, from Wick & Dahlgren, P. O. Box 25, Tacoma, $360,000. CD 1/19—ENR 1/25.

CONTRACTS AWARDED

†**Ala., Tuscumbia**—Robbins Tire & Rubber Co., Tuscumbia, tire factory main bldg., 1 and 2 story, boiler room, miscellaneous bldgs. to Daniel Constr. Co., P. O. Box 1311, Birmingham, $300,000. Defense Plant Corp. will finance. CD 2/14—ENR 2/22.

†**Calif., Santa Barbara**—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 96 unit family dwellings, Calif. 4027-N, for Navy.

†**Ill., Dixon**—U. S. Eng., 520 Merchandise Mart, Chicago, 2 inert storage warehouse addns., Contr. W-11-032-Eng-1924, Green River Ordnance Plant, to J. L. Simmons Co., Inc., Union Title Bldg., Indianapolis, Ind., approx. $200,000.

★†**Ind., La Porte**—U. S. Eng., 520 Merchandise Mart, Chicago, Ill., modification load lines at Kingsbury Ordnance Plant, to H. K. Ferguson Co., Hanna Bldg., Cleveland, O., approx. $3,000,000.

Ia., Pella—City, F. M. Frush, mayor, City Hall, electric power plant imprvs., incl. turbo-generator and surface condenser, to Elliott Co., Jeannette, Pa., $60,098. Brown Eng. Co., Valley Bank Bldg., Des Moines, engr. Bids 1/12.

†**Kan., De Soto**—U. S. Eng., 10 E. 17 St., Kansas City, Mo., 26 addnl. bldgs. at Sunflower Ordnance Plant, to Olson Const. Co., 410 S. 7 St., Lincoln, Neb., $238,896; altering, imprv., sprinkler sys. in old line and addnl. installations for F line, to Automatic Sprinkler Corp. of America, Law Bldg., Kansas City, Mo., $212,644.

†**Ky., Louisville** — Park & Tilford, Distillers, Inc., 35 and Tyler Sts., 2 story, brick, feed recovery plant, to Whittenberg Constr. Co., 2214 S. Floyd St., $250,000. Awarded 2/20. Defense Plant Corp. will finance.

†**Mass., Camp Edwards**—U. S. Eng., 31 St. James Ave., Boston, bldg. addns., Contr. 19-023-45-Neg-88, to Frankini Constr. Co., 30 Mystic Ave., Medford, $114,720. CD 2/20—ENR 3/1.

†**Nev., Hastings**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., magazines, incl. roads, railroad and services, NOY 11085, to Gresham, Anderson, Probst & White, 1417 Railway Exchange, Chicago, Ill., $54,000.

†**Nev., Boulder City**—Rheem Mfg. Co., 716 E. Olympic Blvd., Los Angeles, Calif., altering small portion Basic Magnesium Plant

PUBLIC BUILDINGS. (Contracts Awarded, Cont'd.)

for processing shell casings, near here, to O. J. Scherer, 129 N. Center St., Las Vegas, Nev., and Bennett-Forsberg Electric Co., 2901 Beverly Blvd., Los Angeles, Calif., approx. $150,000. Defense Plant Corp. will finance.

★†N. J., Dover—U. S. Eng., 120 Wall St., New York 5, N. Y., several bldgs., Picatinny Arsenal, to Wigton Abbott Corp., 1225 South Ave., Plainfield, $1,000,000. CD 1/26—ENR 2/1.

†N. J., Passaic—Western Elec. Co., 100 Central Ave., Kearny, interior alterations to 3 factory bldgs., to Hugh A. Montague & Son, 340 Bergen Ave., Jersey City, $300,000. Defense Plant Corp. will finance.

★†N. J., Woodridge—Wright Aeronautical Corp., 122 Beckwith St., Paterson, addnl. plant bldgs., to Mahony-Troast Constr. Co., 467 Main Ave., Passaic, $2,500,000 plus. Defense Plant Corp. will finance.

†S. D., Provo—U. S. Eng., 909 17 St., Denver, Colo., fire walls in warehouses, Black Hills Ordnance Depot, Contr. W-05-416-Eng-285, to Spiegelberg Lumber & Bldg. Co., Laramie, Wyo., $55,033.

†Tex., Karnack — Monsanto Chemical Corp., Karnack, addnl. work in increasing capacity of Ordnance Plant, to Esslinger-Misch Co., Marshall and Karnack, approx. $500,000. Defense Plant Corp. will finance.

†Tex., Texarkana—U. S. Eng., 231 W. Main St., Denison, heavy type loading platform, at Army Ordnance Plant, Ser. 41-242-42-96, to Marshall Constr. Co., 719 Wilson Bldg., Dallas, approx. $43,360. CD 1/17—ENR 1/25.

★†Va., Chincoteague—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., structures at Naval Ordnance Test Station, NOY 11158, to Virginia Engineering Co., Inc., 30-29 St., Newport News, $804,500. Bids 2/8. CD 2/13, under LB.

★†Va., Radford—U. S. Eng., Fort Norfolk, Norfolk, A-E-M miscellaneous bldgs., at Radford Ordnance Works, to Mason & Hanger Co., 500 Fifth Ave., New York, $10,000,000. CD 1/24—ENR 2/1.

†Wash., Renton—Pub. Housing Auth., NHA, Skinner Bldg., 5 and Union Sts., Seattle, 432 unit dormitory housing, to Strand & Sons, 3939 University Way, Seattle, Zone 5, $304,600. CD 1/15—ENR 1/18.

Ont., Etobicoke—Trustees of Etobicoke High School, high school, to Grattan Const. Co., Ltd., 486 Clinton St., Toronto. $150,000.

COMMERCIAL BUILDINGS

PROPOSED WORK

Calif., Lakewood Village (br. Long Beach)—Clifton B. Robertson, c/o H. Gibbs, archt., 441 E. First St., Long Beach, 100 frame, stucco dwellings. $400,000.

Mich., Lansing—J. W. Knapp Co., Lansing, 4 story, bsmnt., brick, steel, concrete department store addn. $250,000.

O., New Concord—R. Montgomery, pres. Muskingum College, New Concord, men's dormitory housing 100 students. $150,000-$200,000.

R. I., Central Falls—Notre Dame Hospital, W. E. Lamarine, pres., 1000 Broad St., brick, steel hospital wing addn. $150,000.

S. C., Georgetown—Georgetown Post American Legion, Georgetown, hospital. $300,000.

Tex., Beaumont—Residential Builders, Inc., Beaumont, plans by J. Knostman, 2017 W. Gray St., Houston, residences. $150,000.

★**Tex., Orange**—E. I. duPont deNemours & Co., duPont Bldg., Wilmington, Del., butments and trailer units, $500,000; public school bldg., store bldg., and other community facilities. $300,000.

Wash., Seattle—Modern Home Builders, 3849 24 Ave. W., Seattle, Zone 99, fifty-two 1 and 1½ story, bsmnt., frame houses, electrically heated in Viewmont Park. $300,000. Morford & Mowry, Lyon Bldg., 3 and James Sts., Zone 4, engrs.

★**B. C., Vancouver**—Huron & Erie Mortgage Corp., Huron and Erie Bldg., Dundas St., London, Ont., M. Aylsworth, genl. mgr., G. L. Spry, advt. mgr., office. $400,000-$500,000.

Man., Beausejour—Roman Catholic Parish of St. Mary, Beausejour, church. $150,000.

Ont., Toronto—Eastern Agency, Ltd., 17 Queen St., 40 bungalows. $130,000.

★**Ont., Toronto**—C. W. Jones Const. Co. Ltd., 613 Spadina Ave., 12 story, 160x260 ft., rein.-con., steel, brick, apartment hotel, Yonge St. $2,000,000.

Que., Arvida—Saguenay General Hospital, Arvida, plans by Fetherstonbaugh & Durnford, 660 St. Catherine St. W., Montreal, hospital. $250,000.

★**Que., Quebec City**—Quebec Seminary, Rev. Msgr. C. Gagnor, rector, St. Famille St., upper seminary or theological school, Ste. Foys Rd. Over $1,000,000. E. Cormier, 2039 Mansfield St., Montreal, engr.

Que., Quebec City—Roman Catholic Parish of St. Charles Garnier, Rev. A. Morel, pastor, c/o Convent of Ste. Jeanne d'Arc, Bergerville, plans by C. A. Jean, 2 Cote d'Abraham St., church and presbytery, on Sir Wilfrid Laurier Hy., between Charles and Maxfield Sts. $175,000. CD 8/30—ENR 9/14.

Que., Sherbrooke—Quebec Catholic School Comn., E. Hust, secy., 50 Richelieu St., 4 story, 40x120 ft., addn. Notre Dame de Grace School. $150,000.

BIDS ASKED

Bids Asked March 10

N. C., Winston Salem — North Carolina Baptist Hospital, Winston Salem, out patient bldg. Plans deposit $25. Northrup & O'Brien, Winston Salem, archt. Schmidt, Gordon & Erickson, 104 S. Michigan St., Chicago, Ill., assoc. archts.

Bids Asked

Ill., River Forest—John Cummings Landop Real Estate, Inc., 630 N. Harlem St., 3 story, 165x300 ft., brick apartment. $190,000. C. J. Kastrup, 7346 Madison St., archt. CD 11/21—ENR 11/30.

CONTRACTS AWARDED

Calif., Lakewood City—Wm. C. Warmington Co., 8330 W. Third St., Los Angeles, 99 frame, stucco dwellings. Owner builds. $400,000. H. Gibbs, 441 E. First St., Long Beach, archt.

Calif., Long Beach—Artcraft Builders, 6900 S. Western Ave., Los Angeles, 50 frame, stucco duplex dwellings near Los Cerritos Diagonal. Owner builds. $350,000.

Calif., San Leandro—Beckett & Federighi, 1330 Davis St., forty-five 1 story, frame homes on Big Sisters' property, 50 acres lying between E. 14 St. and Foothill at approx. 145 Ave. and an 18-acre tract known as Covelho property, south of Big Sisters and facing Foothill, near here. Owner builds. Approx. $250,000.

Calif., San Leandro—Groom & Groom, 19567 E. 14 St., Hayward, forty-five 1 story, frame homes on Big Sisters' property, 50 acres lying between E 14 St. and Foothill at approx. 145 Ave. and an 18-acre tract known as Covelho property, south of Big Sisters and facing Foothill, near here. Owner builds. Approx. $250,000.

Calif., San Leandro—P. Heraty, 3625 MacArthur Blvd., Oakland, forty-five 1 story, frame homes on Big Sisters' property, 50 acres lying between E. 14 St. and Foothill at approx. 145 Ave. and 18-acre tract known as Covelho property, south of Big Sisters and facing Foothill near here. Owner builds. Approx. $250,000.

Calif., San Leandro—C. H. McEntyre, 1404 Franklin St., Oakland, forty-five 1 story, frame homes on Big Sisters' property, 50 acres between E. 14 St. and Foothill at approx. 145 Ave. and an 18-acre tract known as Covelho property, south of Big Sisters and facing Foothill, near here. Owner builds. Approx. $250,000.

Calif., San Leandro—C. H. Russell, 1330 Davis St., forty-five 1 story, frame homes on Big Sisters' property, 50 acres lying between E. 14 St. and Foothill, at approx. 145th Ave. and an 18-acre tract known as Covelho property, south of Big Sisters, and facing Foothill, near here. Owner builds. Approx. $250,000.

Tex., Houston — E. T. Kelley, Warwick Hotel, 19 dwellings, force account. $150,000.

Wash., Grandview—Nettleton & Baldwin, 1109 N. 36 St., Seattle, Zone 3, twenty-five 1 and 1½ story frame houses, day labor. $150,000.

Wash., Tacoma—March Constr. Co., 730 Commerce St., 50 houses at 3108-28 S. 17 St., 3103-47 S. 18 St., 3103-47 S. 19 St., 1715-1815 S. Lawrence St. and 1702-1814 S. Cedar St., day labor. $325,000.

INDUSTRIAL BUILDINGS

PROPOSED WORK

★**Calif., Corning**—MILL—Yolla Bolly Lumber Co., H. C. Crofoot, genl. mgr., Magalia, saw mill, planning mill, plywood factory, box factory, near here. $3,000,000.

Calif., Vernon—FACTORY—Norris Stamping Co., 5215 S. Boyle Ave., making plans 1 story, 151x360 ft., brick, concrete, steel factory bldg., incl. loading platform, concrete pits, spur track, adjoining present plant at 5215 S. Boyle Ave. $245,000. Chas. Webber Co., 606 S. Hill St., Los Angeles, engr.

★**Conn., Cos Cob**—POWER PLANT—New York, New Haven & Hartford R.R. Co., E. E. Oviatt, ch. engr., Water St., New Haven, making plans power plant alterations and installations relieving heavy traffic loads to east, reconstructing electrical facilities, installing capacitators in sub stations. $697,870. S. Withington, Yellow Bldg., New Haven, engr.

Conn., East Hartford (br. Hartford)—GARAGE—Owner, c/o F. S. Langdon, archt., 325 Sate St., New London, sketches 1 story, 65x80 ft., and 30x50 ft., brick, steel, service garage, Burnside Ave. $40,000.

★**Conn., New Haven**—MANUFACTURING—Armstrong Rubber Co., 475 Elm St., mfg. bldg. addn. $1,000,000. Fletcher-Thompson, 211 State St., Bridgeport, engrs.

Conn., Norwich—FACTORY—U. S. Finishing Co., Greenville, Norwich, soon lets contract brick factory addn., alteration. Over $40,000. Lockwood Greene Co., 10 Rockefeller Plaza, New York, N. Y., engrs. CD 2/15—ENR 2/22.

Ga., Atlanta — PLANT — Walker Electric Co., 1590 Northside Dr. N.W., repairing plant damaged by fire. $250,000.

Ill., Chicago—FACTORY—Crane Packing Co., 1801 W. Belle Plaine, 2 story, 75x120 ft., brick factory addn.

Ill., Macomb—FACTORY—Hemp & Co., Macomb, soon lets contract 1 and 2 story, 124x480 ft., brick, concrete, steel factory.

Ind., Delphi—FACTORY—Globe Valve Co., S. Young, mgr., bids soon 1 story 100x300 ft., glazed tile, etc. factory. $100,000. CD 7/14—ENR 7/20.

★**Ind., Frankfort**—PROCESSING MILL—Swift & Co., P. M. Jarvis, 4115 Packers St., Chicago, Ill., plans nearing completion soybean processing mill, incl. two 5 story processing bldgs., 3 story, brick, concrete preparation and meal conditioning bldg., 3 story, brick, concrete warehouse, 1 story, brick, steel, rein.-con. boiler house; 2 story machine shop and utility bldg., 1 story office bldg., unloading sheds, along Nickel Plate Ry. $500,000.

Ind., Indianapolis—POWER PLANT—Link Belt Co., 220 S. Belmont St., making plans brick, steel power plant imprvs., concrete boiler, generator, piping. $100,000. Bevington, Taggart & Fowler, Inc., 730 Indiana Pythian Bldgs., engrs.

Ind., Indianapolis—PLANT—Peerless Furnace Co., 1853 Ludlow Ave., rebuilding plant. $75,000 or more.

La., Welsh—PLANT—Kleinman Brothers, Welsh, rejected bids Feb. 17, rice drying and concrete storage plant. Central. CD 2/5—ENR 2/8.

Me., Waterville—POWER PLANT—Maine Central R. R. Co., T. Sughrue, ch. engr., 222-242 St. John St., Portland, Zone 4, soon lets contract, power plant at Waterville Shop and Engine House. To exceed $25,000.

Mass., Billerica—GENERAL SHOP—Boston & Maine R.R., T. G. Sughrue, ch. engr., 150 causeway, Boston, preliminary studies wheel shop addns., alterations. Over $40,000. Hubbard Rickerd & Blakeley, 275 Orange St., New Haven, Conn., engrs.

Mass., Fitchburg—PLANT—United Cooperative Farmers, Inc., 315 Broad St., poultry dressing plant, brick steel, Broad St. $50,000.

Mich., Detroit—BOILER HOUSE—Buhl Co., 2730 Scotten Ave., plans by Shreve, Anderson & Walker, Guaranty Bldg., brick, steel, rein.-con. boiler house. $50,000.

Neb., Beatrice — PLANT — Beatrice Steel Tank Mfg. Co., Beatrice, rebuilding plant bldg., recently destroyed by fire. $98,500.

N. J., Belleville—PLANT—Hanlon & Goodman Co., 12 Main St., plans by P. W. Drake, 32 Maple St., Summit, 3 story, bsmnt., brick mfg. plant addn. $60,000.

N. J., Hackensack—PLANT BLDGS.—Sun Oil Co., J. Howard Pew, pres., 1608 Walnut St., Phila., Pa., and 520 Hudson St., Hackensack, N. J., district bldg. addn., and garage and office bldg. Approx. $50,000.

N. J., Lambertville—BOILER PLANT—Diamond Silver Co., N. Union St., plans by A. D. Carroll, 1310 Spruce St., Phila., Pa., boiler plant alterations, addns. $50,000. Eggly Engineers, 1500 Walnut St., Phila., Pa., engrs.

N. J., Linden—FACTORY—Main Chemical Supply Corp., 109 Prince St., New York, N. Y., plans by N. Siegler, 951 Broad St., Newark, 1 story, 100x140 ft., brick, glass brick factory. $45,000.

N. J., Paulsboro — CHEMICAL — Socony Vacuum Oil Co., E. A. Esser, ch. engr., 26 Bway., New York, N. Y., soon lets contract Chemical Eng. Bldg. 5 addn. $45,000. F. G. Frost, 144 E. 30 St., New York, N. Y., archt.

N. J., Piscataway (Bound Brook P. O.)—MANUFACTURING—Bakelite Corp., River Rd., plans by Francisco & Jacobus, 511 5 Ave., New York, N. Y., mfg. bldg. addn. $63,000.

N. J., Trenton—PRESS SHOP—The Roller Bearing Co. of America, Whitehead Rd., soon lets contract 1 story press shop addn. $50,000. Micklewright & Mountford, 219 E. Hanover St., archts.

N. M., Belen—ROUNDHOUSE—Atchison, Topeka & Santa Fe Ry. Co., J. A. Noble, ch. engr. (Western lines), Amarillo, soon lets contract, roundhouse. $75,000. CD 1/4—ENR 1/11.

N. Y., Buffalo—PLANT—Foster-Milburn Co., 468 DeWitt St., L. A. Kreig, vice-pres. and treas., soon lets contract 1 story, brick, steel concrete drug mfg. plant addn. $40,000-$50,000.

N. Y., Rensselaer — DIESEL ENGINE SHOP—New York Central System, S. E. Armstrong, ch. engr., 466 Lexington Ave., New York, Zone 17, bids soon altering Diesel engine shop.

N. C., Burlington — PLANT — Alamance Frozen Foods, Inc., Burlington, revising plans, new bids soon cold storage locker plant. Bids 2/12 rejected. R. R. Markeley, Durham, engr. CD 2/20, under LB.

INDUSTRIAL BLDGS. (Proposed Work, Cont'd.)

O., Fremont—PLANT—Fremont Rubber Co., R. Johnson, genl. mgr., Fremont, plant replacing one destroyed by fire, containing 43,000 sq. ft. space, $100,000.

★**O., Reading (br. Cincinnati)**—FEED MILL—Cooperative Mills, Inc., Richmond, Va., c/o A. E. Baxter, engr., 344 Delaware Ave., Buffalo, N. Y., 1 story, masonry feed mill addn., rein.-con. elevator. $750,000.

Ore., Eugene—FEED MILL—Pacific Cooperative Poultry Producers Assn., 306 S. E. Ash St., Portland, plans by L. A. Thomas, Platt Bldg., Portland, feed mill and warehouse. $150,000. Jones-Hettelsater Constr. Co., 1612 Baltimore St., Kansas City, Mo., engr.

Pa., Morton—PLANT—Lansdowne Steel & Iron Co., Morton, making plans mfg. plant addn. $165,000.

Pa., Phila. — WAREHOUSE — Puritan Woolen Mills, Moyamensing Ave. and Morris St., repairing warehouse. $75,000.

Pa., Phila.—PLANT—Schneider Bros. & Co., 912-920 Brown St., rebuilding paper lacquering plant. $200,000.

Pa, Phila.—PLANT—L. Sichel & Sons, 149 S. Front St., 3½ story mattress and bedding plant. $50,000.

Pa., York—FACTORY—Bon Ton Potato Chip Factory, D. H. Becker, W. L. Cook, owners, rebuilding factory. $40,000.

R. I., Cranston — FACTORY ALTERATIONS, etc.—Atlantic Tubing & Rubber Co., G. P. Smith, in charge, Mill St., making plans factory alterations, imprvs., steam and water lines, electrical work, etc. $60,000.

Tex., Amarillo — MAINTENANCE and STORAGE—Southwestern Greyhound Lines, Amarillo, soon lets contract, 4 story, 125x200 ft., brick, steel mechanical shop maintenance and storage bldg. $80,000. Plans deposit $25. M. O. Carder, 317 Fisk Bldg., archt. CD 2/9—ENR 2/15.

Tex., Fort Worth—LAUNDRY—H. M. Stallings, 3614 Crestlind Rd., plans by Consolidated Architects & Engineers, Fort Worth National Bank Bldg., 80x120 ft., brick, concrete laundry. $40,000.

Tex., Houston—PLANT—Robertson Transport Co., 5625 Polk St., plant. $40,000.

Tex., Houston — WAREHOUSE — W. A. Smith Constr. Co., Citizens State Bank Bldg., 1 story, steel concrete warehouse, $40,000.

Tex., McAllen — WAREHOUSE — J. E. Morgan, 501 Highway, 1 story, brick, rein.-con. warehouse, $45,000.

★**Tex., Orange**—PLANT—E. I. duPont de Nemours & Co., du Pont Bldg., Wilmington, Del., and 2219 McKinney St., Houston, plans nylon salt plant, 3 mi. south of here. $22,000,000.

Tex., Port Isabel — PLANT — Technical Fisheries Co., 1332 Evans Ave., San Francisco, Calif., and J. L. Kline, Port Isabel, 1 story, brick, rein.-con. plant, $40,000.

Tex., Raymondville—PLANT—Delta Canning Co., Raymondville, plans by Julian & White, 2901 Transit Tower Bldg., San Antonio, 1 and 2 story, 66x100 ft. citrus and vegetable canning plant; clay tile, concrete, metal. $48,000.

Tex., Raymondville—SLAUGHTER HOUSE—McManus & Sons, Raymondville, plans by Julian & White, 2901 Transit Tower Bldg., San Antonio, clay tile, concrete, metal slaughter house, $40,000.

Tex., San Antonio—WAREHOUSE—W. A. Kelly, 2215 Belknap Pl., warehouse and furniture plant. $50,000.

Tex., Tulia—GRAIN ELEVATOR—Tulia Wheat Growers, Inc., Tulia, 300,000 bu. rein.-con. elevator. $60,000.

W. Va., New Cumberland—PLANT—Hancock Mfg. Co., New Cumberland, rebuilding Assembly Plant 2, destroyed by fire. To exceed $50,000.

Wis., Algoma — WAREHOUSE — Algoma Plywood & Cencer Co., Algoma, soon lets contract, 1 story 125x250 ft., brick, steel warehouse addn., wood piling and concrete fdn. G. L. Cadenhead, Algoma, engr. CD 10/31—ENR 11/2.

Wis., Appleton—BOILER HOUSE—Fox River Boiler Works, 701 S. Bounds St., plans by E. A. Wettengel, 116 S. Pierce Ave., 1 story, 64x100 ft., steel boiler house addn., alterations, concrete fdn.

Wis., Fond du Lac—FACTORY—F. J. Stepnoski & Son, archts., 104 S. Main St., soon lets contract 1 story, 120x200 ft., rein.-con., 180x223 ft. bsmnt., 60x223 ft. section of bsmnt. to be built for future 4 story steel, brick, factory addn., for Damron Bros., Western Ave. CD 12/29—ENR 1/4.

B. C., Blubber Bay—SAW MILL—Pacific Lime Co. Ltd., Blubber Bay, saw mill, etc. $40,000.

B. C., Nanaimo—MILL etc.—W. Y. Higgs, Nanaimo, mill, loading platform and booming grounds in bed of Exit Passage. $60,000.

Man., Winnipeg — PLANT — Fort Garry Brewery, Ltd., 721 Furby St., plant addn. $60,000.

Man., Winnipeg — FACTORY — Graham Sash Co., Ltd., 120 McPhillips St., factory. $40,000.

N. B., Bathhurst—GARAGE—Lounsbury Co., Ltd., Moncton, plans by A. L. Perry, 1502 St. Catherine St. W., Montreal, Que., reconstructing 1 story, 96x100 ft., rein.-con. garage. $45,000.

North West Territory, Yellowknife—DIAMOND DRILLING, etc.—Kimberley Yellowknife Gold Mines, Ltd., 414 Bay St., Toronto, Ont., diamond drilling, surface work, essential structures. $75,000.

North West Territory, Yellowknife—DIAMOND DRILLING—Jeph Yellowknife Gold Mines, Ltd., 330 Bay St., Toronto, Ont., diamond drilling. $50,000.

North West Territory, Yellowknife—MILL, etc.—Peg Tantalum Mines Ltd., Yellowknife, 50 ton mill, imprvs. on mining property, Ross Lake Area. $75,000.

North West Territory, Yellowknife—DIAMOND DRILLING—Sava Yellowknife Gold Mines, Ltd., 67 Yonge St., Toronto, Ont., diamond drilling. $60,000.

Ont., Barrie — FACTORY — William H. Hurst Grain & Cereals, Inc., Barrie, factory exten. $40,000.

Ont., Crozier — POWER HOUSE — Arctic Peat Moss Corp., Crozier, power house, processing and baling plants. $60,000.

Ont., Hamilton—GARAGE, etc.—Prack & Prack, archts., 36 James St., soon let contract 3 story, bsmnt., steel frame and joists, brick, tile office bldg. addn., altering garage, for Dominion Foundries & Steel, Ltd., Depew St., Hamilton. $50,000.

Ont., Kingston—FACTORY—W. J. Wing, 540 Montreal St., factory. $40,000.

Ont., Toronto—PLANT—Horwood & White, archts, 229 Yonge St., soon let contract 2 story, 88x130 ft. glyptal plant, steel, concrete fdn., 940 Lansdowne Ave., for Canadian General Electric Co., Ltd., 212 King St. W. About $200,000. CD 1/30—ENR 2/8.

Ont., Toronto—SHAFT SINKING, etc.—Madsen Red Lake Ltd., 67 Young St., shaft sinking, driving cross cuts on 4 new levels, underground hoist and internal shaft, etc. $75,000.

Ont., Toronto—PLANT—Mercury Cycle & Tool Mfg. Co., Ltd., 1351 Dufferin St., plant addns. $50,000.

Ont., Toronto—FACTORY—Photogelatine Engraving Co., Ltd., 471 Wellington St., Ottawa, factory. $50,000.

Ont., Toronto—FACTORY—I. M. Saunders, archt., 26 E. Queen St., soon lets contract 5 story, bsmnt., 60x101 ft., rein.-con. factory, office, for J. Steinberg, c/o M. Reingold, 88 W. Richmond St. $175,000. CD 12/28—ENR 1/4.

Ont., Toronto—PLANT—J. Waese, 463-465 College St., plans by E. I. Richmond, 455 Spadina Ave., 1 story shoe mfg. plant, concrete block. $45,000.

Ont., Welland—LAUNDRY—Welland New Method Laundry Lt., Welland laundry. $50,000.

Ont., Windsor—PLANT—Kohen Box Co. Windsor Ltd., Windsor, woodworking plant. $40,000.

Que., Belleterre—DIAMOND DRILLING—Girard Lake Mines, Ltd., 330 Bay St., Toronto, Ont., diamond drilling. Over $50,000. J. P. Norrie, Amos, engr.

Que., Granby — FACTORY — Stark Bros. Ribbon Corp. of Canada, Ltd., Granby, plans by M. W. Roth, 204 Notre Dame St. W., Montreal, factory addn. $47,000.

Que., La Tuque—PLANT—Luquide Vitrex Liquid, Ltd., La Tuque, mfg. plant.

Que., Malartic—SHAFT SINKING, etc.—Parbec Malartic Gold Mines Ltd., 67 Yonge St., Toronto, Ont., shaft sinking, other development. $60,000.

Que., Montreal—PLANT—Artik Ice Cream Co., Inc., c/o H. Weinfield, 132 W. St. James St., butter, ice cream, milk products mfg. plant. $50,000.

Que., Montreal—PLATINUM DEVELOPMENT, etc.—Auf de Maur Corp., 3452 Shuter St., platinum and tantalum properties development, 200 acres Lake Pied des Monts, Charlevoix Co. $70,000.

Que., Montreal—FACTORY—Aux Tissages Francais, Ltd., 35 W. Jean Talon St., plans by A. L. Bernstein, 1178 Phillips Pl., factory. $40,000.

Que., Montreal—PLANT—Canadian Industry, Ltd., 1135 Beaver Hall Hill, plant exten. $75,000.

Que., Montreal—PLANT—Flyfast Ltd., c/o M. Abbey, 201 W. Notre Dame St., novelties mfg. plant. $40,000.

Que., Montreal — MINING DEVELOPMENT, etc.—Gaspe Oil Ventures, Ltd., c/o J. Martineau, Ste. Genevieve de Pierrefonds, mines and minerals development. $50,000.

Que., Montreal—FACTORY—J & P Leone, 445 St. Helen St., factory. $40,000.

Que., Montreal — FACTORY — Tissages Francais Ltd., 445 St. Helen St., plans by Mayerovitch & Bernstein, 1178 Phillips Pl., 2 story, bsmnt., 80x120 ft. factory. $50,000.

Que., Quebec City—PLANT—Anglo Canadian Pulp & Paper Mills, Ltd., Quebec City, plant addn. $50,000.

Que., Quebec City—PLANT—Kist Liqueurs Reg., Roosevelt and Churchill Blvds., aerated drink mfg. plant. $40,000.

Que., Rouyn — DIAMOND DRILLING—Carlson Mines, Ltd., Rouyn, diamond drilling. $60,000. H. J. Logan, c/o owner, engr.

Que., St. Johns — FACTORY — Canadian Moided Veneers, Ltd., c/o J. Sabourin, K. C., St. Johns, factory.

Que., St. Louis de Courville—FACTORY, etc.—O. Corriveau, St. Louis deCourville, aerated water factory, bottling plant, etc. $40,000.

Que., Sherbrooke—PLANT—Panther Rubber Mfg. Co., Ltd., 29 Jenches Lane, plans by A. L. Perry, 1502 St. Catherine St. W., Montreal, 2 story, 40x140 ft., plant exten. $45,000.

Que., Thetford Mines—PLANT—Flintkote Mines Ltd., Thetford Mines, asbestos fibre production plant. $75,000.

Que., Waterville — PLANT — Johnson Woolen Mills, Inc., Waterville, reconstructing plant. $40,000.

Sask., Regina—STOREHOUSE—Saskatchewan Federated Co-Operative, Ltd., 1150 Rose St., storehouse and cold storage plant. $60,000.

BIDS ASKED

Bids Asked March 5

N. J., Woodbridge — LABORATORY — Wright Aeronautical Corp., Main and Passaic Aves., exten. carburetor laboratory bldg., also altering present bldg., Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., archts.

Bids Asked About March 6

Wis., Carrollville—STORAGE—R. F. Corp., 208 S. LaSalle St., Chicago, Ill., 3 or 4 one story, 125x400 ft., steel, concrete block storage bldgs. K. Franzheim & A. B. Mills, 728 17 N.W., Wash., D. C., archts.

Bids Asked March 12

Ont., Aylmer—COALING PLANT—Canadian National Rys., H. A. Dixon, ch. engr. (Oper.) Sys., 360 McGill St., Montreal, Que., rein.-con. coaling plant. $50,000.

Bids Asked February 27

Neb., Omaha—WAREHOUSE—Morewood Warehouse Corp., 802 Leavenworth St., warehouse. $250,000. O. Bowles, 4532 Hickory St., archt. CD 10/4—ENR 10/12.

Bids Asked

N. C., High Point—PLANT—S. D. Gibson, Jr., High Point, ice cream mfg. plant, $100,000. T. T. Ferree, High Point, archt.

Pa., Phila.—SERVICE—Barrett Div. of Allied Chemical & Dye Corp., P. G. Linck, plant engr., Margaret and Bermuda Sts., 6 brick, frame service bldgs. $50,000.

Pa., Phila.—PLANT—Commercial Corrugated Box Co., W. W. Janicki, mgr., 2916 N. Croskey St., brick, steel industrial plant, loading platform, etc. $50,000. E. A. Stopper, 2112 Spruce St., archt.

★**Tex., Orange**—PLANT—E. I. DuPont de Nemours & Co., du Pont Bldg., Wilmington, Del., nylon salt plant. $22,000,000. CD 2/21.

Vt., Montpelier—PLANT—Montpelier Cooperative Freeze Lockers, Montpelier, brick, steel, concrete plant, $52,000. P. R. Webber, Grow St., Rutland, archt. CD 10/31—ENR 11/2.

LOW BIDDERS

Tex., Bay City—PLANT—Bay City Rice Drying Co., Bay City, 30,000 bbl. rice drying and storage plant, from Texas Gulf Constr. Co., 2008 S. Wayside St., Houston, Item 1 **$258,040.** CD 2/5—ENR 2/8.

Tex., El Campo—PLANT—R. Raun, El Campo, rice drying and storage plant, rein.-con., from W. D. Peck & Co., Inc., Citizens State Bank Bldg., Houston, **$65,256.** Central Engineering Co., c/o A. Van Zyverden, Larendon Bldg., 1210 Texas Ave., engr. CD 2/19—ENR 2/22.

Wis., Wittenberg — MILK PLANT and POWER HOUSE—Consolidated Badger Cooperative, Shawano, Feb. 16, 1 and 2 story, 82x194 ft., milk plant, and 1 story, 48x82 ft. power house, from A. H. Proksch, Iron River, Mich. L. A. Geneisse, 226 N. Washington St., Green Bay, archt. CD 2/13—ENR 2/15.

CONTRACTS AWARDED

Calif., Los Angeles—FACTORY—Reliable Mfg. Co., 2636 Humboldt St., 1 story factory and office bldg., 3400 Medford St., to Ted R. Cooper Co., 1031 S. Bway., approx. **$97,500.**

Calif., Vernon—FACTORY, etc.—Freuhauf Trailer Co., 5137 S. Boyle Ave., 50x650 ft. rein.-con. factory and office addn., incl. superstructure over loading dock, to Collins Constr. Co., 5137 Boyle Ave., approx. **$125,000.**

Conn., New Britain — GARAGE — Stanley Works, 195 Lake St., 1 story, 92x142 ft., brick, steel garage, to Hasson & Downes, 55 W. Main St. **$44,045.** CD 12/26—ENR 12/28.

Conn., Plainville—FACTORY—Job Plating Co., 136 East St., 1 and 2 story 50x100 ft. and 40x50 ft., brick factory, East St., to Associated Constr. Co., 195 Thames St., Groton. **Est. $40,000.** H. F. Ludorf, 410 Asylum St., Hartford, archt. Bids 2/13. CD 2/5—ENR 2/8.

INDUSTRIAL BLDGS. (Contracts Awarded, Cont'd.)

Conn., West Haven—FACTORY—A. F. Holden Co., 52 Richards St., 1 story, 100x120 ft., cinder block factory, Richards St., to Kelley-Wood Co., 76 Center St., New Haven. Est. $20,000. L. F. Caproni, 1221 Chapel St., New Haven, engr. CD 2/14—ENR 2/22.

Fla., Bartow—PLANT—Bartow Groves Co-operative Assoc., Bartow, 90x150 ft., concrete block canning plant, to Paul Smith Constr. Co., 316 N. Rome Ave., Tampa. $55,000.

Ga., Atlanta—PLANT—Scripto Mfg. Co., 425 Houston St. N.E., plant addn., to Hardin & Ramsey, 161 Spring St. N.W. Robert & Co., Bona Allen Bldg., archts. CD 1/31—ENR 2/1.

Ga., La Grange—MILLS—West Point Mfg. Co., West Point, 2 story, brick addn. to Dixie Cotton Mills, to Newman Constr. Co., La Grange. Robert & Co., Bona Allen Bldg., Atlanta, engrs. CD 2/13—ENR 2/15.

Ill., Chicago—FACTORY—J. H. Keeney & Co., 4810 S. Ashland Ave., 1 story, brick, factory addn., to William E. Boyington & Co., 1425 W. 75 Pl. Est. $140,000.

Ind., Frankfort—MILL—Swift & Co., P. M. Jarvis, 4115 Packers St., Chicago, Ill., soy-bean mill, storage bins, clearing and dry house, brick, steel, rein.-con., to J. M. Metcalf Co., 105 La Salle St., Chicago, Ill. Est. $100,000. Awarded 2/13. CD 10/11—ENR 10/19.

Minn., Red Wing—TANNERY—S. B. Foot Tanning Co., Red Wing, general contract 1 story, brick, concrete block storage and refrigeration bldg. addn. to tannery, to C. O. Field Co., 2940 Harriet Ave., Minneapolis. Est. $100,000.

Mo., St. Louis — BLDG. — St. Louis Independent Packing Co., 334 S. Vandeventer Ave., Zone 10, 4 story, 80x112 ft., rein.-con., brick office, cafeteria and welfare bldg., concrete fdn., 3841 Chauteau Ave., Zone 30, to A. H. Haeseler Bldg. & Contg. Co., 2346 Palm St., Zone 7. Est. $150,000.

Mont., Great Falls — DIESEL ENGINE SHOP—Great Northern Ry. Co., C. M. Nye, ch. engr., 175 E. 4 St., St. Paul, Minn., 1 story, 50x322 ft., brick, steel shop for repairing, servicing diesel locomotives, with 25x113 ft. wing, to Dudley-Anderson Co., 900 25 N St. Est. $140,000. CD 1/29—ENR 2/1.

Neb., Omaha—PLANT—Seven-Up Bottling Co., 2526 Dodge St., plant addn., day labor. $40,000. J. T. Allen, Brandeis Theatre Bldg., archt.

N. J., Newark—FACTORY—Federal Razor Blade Co., 97 Francis St., 2 story factory addn., to Wm. L. Blanchard Co., 45 Poinier St., $40,000. CD 2/1—ENR 2/8.

N. Y., Mechanicville—POWER PLANT—Boston & Maine R. R. Co., T. G. Sughrue, ch. engr., 150 Causeway, Boston, Mass., power plant alterations, imprvs., piping and equip. included, to Lumsden & Van Stone Co., 426 First St., South Boston, Mass. Est. over $40,000. Hubbard Rickard & Blakeley, 275 Orange St., New Haven, Conn., engrs.

N. C., Durham—GARAGE—Uzzle Motor Co., Durham, garage, to T. W. Poe & Son, Durham, $69,870. Bids 2/15. A. R. Davis, Durham, archt.

Ore., Roseburg—PLANT—Umpqua Plywood Corp., Roseburg, design and construction, frame plywood plant, 48,000 sq. ft. with 1,800 ft. spur track, to Industrial Engineers & Contractors, 711 Middle Waterway, Tacoma, Wash. Est. $40,000. CD 2/26.

Ore., Stayton—PLANT—Stayton Canning Co., Stayton, cold storage plant, to F. M. Smith, Stayton, $98,078. Awarded 2/13. CD 2/20, under CA.

Pa., Bristol — COMPRESSOR HOUSE — Fleetwings, Inc., Bristol, compressor house, to Wintz Bros., Inc., 1618 Sellers St., Phila. $40,000. Awarded 2/12. CD 1/24—ENR 2/1.

Pa., Jeannette — PLANT — Pennsylvania Rubber Co., Jeannette, 1 story, brick, steel rubber plant addn., to Westmoreland Constr. Co., Jeannette. Est. over $40,000. Bids 2/12. CD 2/6—ENR 2/8.

Pa., Phila.—SERVICE AND REPAIR—Goldner Bros., 1217 N. Broad St., altering 5 story, bsmnt. service and repair bldg., showrooms, to Marcus Constr. Co., 338 S. Quince St. $50,000. Awarded 2/12. Frank E. Hahn, Inc., 1511 W. Oxford St., engr.-archt.

Pa., Phila.—OVERFLOW SEPARATOR—Gulf Oil Corp., R. C. Roether, engr., 30 St. and Penrose Ave., concrete overflow separator, to Henry E. Baton, Inc., 1717 Sansom St. $75,000. Awarded 2/12.

Pa., Phila. — REFINERY FACILITIES — Gulf Oil Corp., Refinery Div., R. C. Roether, engr., J. O. Timms, supt., 30 St. and Penrose Ave., fdns. for storage tanks to Henry E. Baton, Inc., 1717 Sansom St., $50,000, awarded 2/8***; fdns. for towers and drums, to McClain Co., 1516 Summer St., $50,000, awarded 2/8***; fdns. for water cooling tower, to Wark & Co., 1700 Sansom St., $50,000, awarded 2/5, all at Girard Point Refinery. Grand total $150,000.

R. I., East Providence (br. Providence)—GARAGE—W. C. Viall, 912 Broadway, 1 story, 75x100 ft., brick, concrete, steel service garage, Broadway, to E. Turgeon, 614 Turks Head Bldg., Providence. Est. $40,000. M. Traficante, 125 Grosvenor Ave., archt. CD 2/5—ENR 2/8.

Tex., Fort Worth—WAREHOUSE, etc.—Traders Cotton Oil Co., 3501 S. Jennings St., rebuilding warehouse and storage bldg. destroyed by fire, to Butcher & Sweeney, 806½ Taylor St., $45,000. P. M. Geren, 806½ Burnett St., archt.

Tex., Houston—PLANT—Houston Oil Field Materials Co., 1524 Maury St., converting chemical plant into shell mfg. plant, to W. S. Bellows Constr. Co., Box 2132. $100,000. CD 2/19—ENR 2/22.

Tex., McAllen—WAREHOUSE—St. Clair Foods Co., McAllen, 1 story, 79x100 ft., brick, rein.-con., etc. warehouse, force account, $40,000. CD 2/26.

Tex., McAllen—PACKING PLANT—Texas Fruit Co., McAllen, 1 and 2 story, brick, rein.-con., etc. packing plant remodeling, alterations, conversion, etc., force account. Approx. $40,000. CD 2/23.

Tex., San Antonio—PLANT—Lone Star Brewing Co., 600 Simpson St., brewery plant mfg. unit, day labor. Approx. $40,000. CD 2/23.

Tex., San Antonio—WAREHOUSE—W. C. Seewald, 1607 Delgado St., warehouse, to Bird & Becker, 341 N. Comal St. Approx. $42,000. CD 2/23.

Wis., Green Bay—FACTORY—Contractors Supply Co., 111 N. Pearl St., 1 story, 50x150 ft., steel, concrete block factory, concrete fdn., to H. Bishop, 1120 McCormick Ave. Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., archts.

Wis., Green Bay—PLANT—Farmers Implement Co., 217 S. Bway, 1 story, 80x120 ft., brick, steel farm implement bldg., to Selmer Co., Northern Bldg. CD 12/6—ENR 12/14.

Wis., Milwaukee — RECEIVING AND STORAGE—Perfex Corp., 500 W. Oklahoma Ave., Zone 7, 1 story, 50 x 275 ft., steel, brick, receiving and storage bldg. addn., concrete fdn., to Permanent Constr. Co., W. Capitol Dr. and N. 3 St., Zone 12. Eschweiler & Eschweiler, 720 E. Mason St., Zone 2, archts.

★**B. C. Powell River**—PLANT, etc.—Powell River Co., Powell River, hydraulic barking plant, wharf with rein.-con. deck and rein.-con. caps on treated timber piles, for pulp and paper plant, to Northern Constr. Co. and J. W. Stewart, Ltd., 736 Granville St., Vancouver. Est. $1,000,000. Hill, White & Sprake, Polson Bldg., and H. R. Powell, Smith Tower, both Seattle 4, Wash., engrs.

Man., Altona — PLANT — Co-Operative Vegetable Oil, Ltd., Altona, bldg., to H. Overgaard, 524 Sprague St., Winnipeg, about $65,000 equipped. CD 6/20—ENR 6/22.

★**Ont., Espanola**—PLANT EXPANSION, etc.—Kalamazoo Vegetable Parchment Co., R. A. Hayward, pres., Kalamazoo, Mich., U.S.A., expanding and rehabilitating, converting former Abitibi Power & Paper Co., Ltd., paper mill into sulphate pulp mill, to P. D. Dalton Co., Ltd., 537 Fleet St. W. Est. $5,000,000.

Ont., Hamilton—WAREHOUSE, etc.—National Grocers Co. Ltd., 31 Front St. E., Toronto, 1 story, bsmnt., 90 x 180 ft., tile warehouse and office, concrete fdn., Wentworth St., to Cooper Const. Co. Ltd., Medical Arts Bldg., approx. $130,000.

Ont., Kitchener — BREWERY — Carling Breweries, Ltd., 155 S. King St., Waterloo, rein.-con., structural steel, brick brewery addn., to Dunker Constr., Ltd., 251 W. King St. Est. $250,000.

Ont., Long Branch (Postal Dist., Toronto)—FOUNDRY, etc.—E. I. Davidson, archt., Excelsior Life Bldg., Toronto, foundry, cafeteria and office addn., Lake Shore Rd., for Sully Brass Foundry, Ltd., 7 Wabash St., Toronto, to Chestnut-McGregor, Ltd., 96 Bloor St. W., Toronto, about $150,000. CD 1/2—ENR 1/4.

Ont., Oshawa—WAREHOUSE, etc.—National Grocers Co. Ltd., 21 Front St. E., Toronto, 1 story, bsmnt., 75 x 150 ft., tile warehouse and office, concrete fdn., Bloor St., to Cooper Const. Co. Ltd., Medical Arts Bldg., Hamilton, approx. $90,000.

Ont., Sarnia — GARAGE — Imperial City Motors, 237 Christina St. N., reconstructing garage, George and Christina Sts., to W. Herridge, Lake Shore Rd., about $50,000. N. B. Forbes, 197 Christina St. N., archt. CD 2/5—ENR 2/8.

Que., Quebec City—WAREHOUSE—Antonia Pettigrew, 1177 Chemin St., Ste. Foye, 3 story, 82 x 102 ft., rein.-con. warehouse, Dalhausie and St. Paul Sts., to Komo Const. Co. Ltd., 187 de la Couronne St., about $70,000. C. E. Demers, Gomin Rd., archt.

Que., Sherbrooke—OIL STORAGE WAREHOUSE—Imperial Oil, Ltd., 3400 St. Patrick St., Montreal, 2 story, 42x94 ft. oil storage warehouse, rein.-con., to Newton Const. Co., Ltd., 150 Victoria St., about $80,000. Luke & Little, 1410 Guy St., Montreal, archts. CD 10/5—ENR 10/12.

UNCLASSIFIED

PROPOSED WORK

★†**Mich., Sault Ste. Marie**—PIER—U. S. Eng., Union Guardian Bldg., Detroit, steel, concrete pier and boat well, and brick steel boat house replacing old Brady Pier on South Canal. Approx. $500,000.

Montana — RURAL ELECTRIC LINES — Beartooth Electric Cooperative, Red Lodge, exten., rural electric lines, Carbon Co. $130,000. REA allot.

Montana — SERVICE EXTENSIONS — Big Horn Co. Electric Cooperative, Inc., Lodge Grass, service exten., Big Horn Co. $50,000.

Mont., Bozeman—HANGAR, etc.—City and Gallatin Co., Bozeman, B. Fowler, co. clk., approved $132,000 bond issue, hangar and administration bldg. F. M. Willson, Bozeman, archt. S. D. Waldorf, Bozeman co. engr.

North Carolina—SERVICE EXTENSIONS—Davie Electric Membership Corp., Mocksville, service exten., Davie Co. $25,000.

O., Toledo—AIRPORT TERMINAL BLDG.—City, City Hall, temporary terminal bldg., incl. waiting room, restaurant, observation platform, office space, 3 or more loading positions, at Municipal Airport. $40,000-$50,000.

O., Toledo—DIKE—City and State, City Hall, 2,500 ft. dike along Carland Beach, near here, preventing erosion. $64,500.

Oklahoma—OIL PIPELINE—Ben Franklin Oil Co., Ardmore, 38 mi. 4 in. oil pipeline from oil field at Aylesworth in Marshall Co. to refinery at Ardmore, Carter Co. $90,000.

Pa., Grand Valley—PRESSURE PLANT, etc.—R. Wylie, Bradford, extensive rehabilitation 266 acre oil producing property on Goodwill Hill, south of here, incl. pressure plant, laying pipelines, installing addnl. steel tank storage facilities. $40,000-$50,000.

Tennessee — SERVICE EXTENSIONS—Caney Fork Electric Cooperative, Inc., McMinnville, service extens., Warren Co. $55,-000.

Texas and West Virginia—GATHERING LINES—Tennessee Gas & Transmission Co., Commerce Bldg., Houston, Tex., withdrew application to construct gathering sys. of natural gas pipelines in Victoria, Tex., area to connect with 1,200 mi. line between Corpus Christi, Tex., and West Virginia. $100,-000. Project abandoned. CD 2/6—ENR 2/8.

Tex., Carthage—LOADING RACKS, etc.—Lone Star Gas Co., 1915 Wood St., Dallas, loading racks, facilities. $75,000.

Tex., Houston—FENCING—City, City Hall, fencing pump station and supply wells areas. $25,000.

Tex., Houston—PARK—City, imprv. municipal park. $25,000 appropriated.

Tex., San Antonio—SWIMMING POOLS—City, G. B. Mauermann, mayor, indefinitely postponed bids to have been opened Feb. 23, 2 swimming pools, incl. bathhouses, pump house, deep well, pump, etc. I at Brackenridge Park and other near Eagle Field. M. L. Diver, City Hall, engr. CD 2/1—ENR 2/8.

Virginia—SERVICE EXTENSIONS — Central Virginia Electric Cooperative, Livingston, service exten., Nelson Co. $25,000.

Wash., Pasco—SWIMMING POOL—City, City Hall, bids soon 70x105 ft., swimming pool, above ground, with 30x160 ft. dressing room. $40,000. W. Bintz, Lansing, Mich., archt. CD 9/22—ENR 9/28.

Wisconsin — SERVICE EXTENSIONS—Oconto Electric Cooperative, Oconto Falls, service exten., Oconto Co. $100,000.

Wis., Oconto Falls—ELECTRIC DISTRIBUTION SYSTEM—Oconto Elec. Coop., Oconto Falls, exten. elec. distr. sys. Wis. 14-Oconto. $100,000. Wisconsin Elec. Coop., 303 E. Wilson St., Madison, engr.

Man., Cornwallis (Postal Dist. Winnipeg)—RURAL ELECTRIFICATION—Manitoba Power Comn., H. H. Cottingham, chn., 146 Notre Dame Ave. E., Winnipeg, electrifying farms in surrounding district homes. $50,000.

Man., Glenwood (Postal Dist. Winnipeg)—RURAL ELECTRIFICATION — Manitoba Power Comn., H. H. Cottingham, chn., 146 Notre Dame St. E., Winnipeg, electrifying farms in surrounding district homes. $50,000.

Man., Winnipeg—RAILWAY BRANCH DIVERSION—Canadian Pacific R.R., J. E. Armstrong, ch. engr., Windsor Station, Montreal, Que., diversion of Souris Branch. $100,-000 plus.

Man., Winnipeg—RUNWAYS—St. James-Winnipeg Airport Com., Winnipeg, enlarging runways 10,000 ft. long, 250 ft. wide with unobstructed flyways at each end of 2,500 ft. $300,000. Tran-Canada Airways, McGill St., Montreal, Que., engrs.

Man., Whitehead (Postal Dist. Winnipeg) — RURAL ELECTRIFICATION — Manitoba Power Comn., H. H. Cottingham, chn., 146 Notre Dame Ave. E., Winnipeg, electrifying farms in surrounding district homes. $35,000.

Nova Scotia—OIL DEVELOPMENT—Glencoe Oil Co. Ltd., Port Hood, oil development

UNCLASSIFIED (Proposed Work, Cont'd.) on 70,000 acre field, Cape Breton Island. $100,000.

N. S., Halifax—LIGHTING—Municipality, installing lights on 24 streets. $37,000. G. H. Durling, City Hall, engr.

N. S., Reserve (Postal Dist., Sydney)—HANGAR—Dominion Govt., Ottawa, Ont., plans by Dpt. National Defense for Air, Lisgar Bldg., Ottawa, Ont., hangar at R.C.A.F. Station. $60,000.

Ont., Froomfield (via Sarnia)—UNLOADING DOCK—Canadian Oils Co., Ltd., Terminal Bldg., Toronto, unloading dock in River St. Clair. $40,000.

Ont., Kitchener—LIGHTING CONDUITS—Municipality, lighting conduit replacement. $45,000. Pub. Utilities Comn., Kitchener, engr.

Ont., Niagara Falls—GREENHOUSES—Niagara Falls Parks Comn., M. T. Grey, mgr., greenhouses, Queen Victoria Park. $100,000. Lord & Burnham Co. Ltd., 325 Welland St., St. Catherines, engr.

Ont., Ottawa—SWIMMING POOLS, etc.—Municipality, N. Ogilvie, city clk., 2 swimming and wading pools. $40,000.

Ont., Simcoe—ICE ARENA—Citizen's Com., L. S. Culver, chn., artificial ice arena. $150,000.

Ont., St. Thomas—PARK—City, E. M. Bennett, clk., St. Thomas, park on 50 acre site. $25,000. W. C. Miller, City Hall, engr.

Ont., Scarboro — CEMETERY GRADING, etc.—Protestant Cemetery Bd., Scarboro, grading, beautification 80 acre site for cemetery purposes. $40,000.

Ont., Woodstock—SWIMMING POOL, etc.—Municipality, A. B. Lee, clk., Woodstock, swimming pool, etc., Victoria Park. $25,000.

Que., Arvida—ARENA—Arvida Athletic Assn., c/o A. Davis, Arvida, arena. $50,000.

Que., Montreal — PLAYGROUND, etc. — Municipality, playground and skating rink, ornamental park landscaping between Kelly St. and Perras Blvd. $50,000. CD 1/11—ENR 1/18.

Que., Quebec City — TOWER — St. John Baptist Church Bd., St. John St., church tower. $40,000.

Que., Quebec City—TRAFFIC LIGHTS—Municipality, c/o C. X. Chouinard, city clk., installing traffic lights. $50,000. E. Hamel, City Hall, engr.

Que., St. Leonard d'Aston—RACE TRACK—L'Hippodrome de St. Leonard de Nicolet Ltd., St. Leonard d'Aston, race track, stables, etc. $50,000.

Sask., Luseland—CURLING RINK, etc.—Bd. Trade, Luseland, curling and skating rink. $50,000.

BIDS ASKED

Bids Asked After February 20

†Tex., Love Field (Dallas) — INSTRUMENT LANDING SYSTEM—Civil Aeronautics Admin., P. O., Box 1689, Fort Worth 1, instrument landing sys., incl. underground cable, localizer, incl. transmitter, antenna and engine generator bldgs. etc. Plans deposit $10.

Bids Asked After February 23

†Ark., El Dorado—AIRPORT REPAIRS—Civil Aeronautics Admin., P. O. Box 1689, Fort Worth, 1, Tex., airport repairs, incl. grading, spillway inlet head walls, spillway outlet headwalls, pipe spillways, rip-rap, seeding, strip sodding, fertilizing. Plans deposit $10.

Bids Asked March 8

†Ala., Maxwell Field (sta. Montgomery)—HANGAR—U. S. Eng., Grant St., west of Westwood St., Mobile, addnl. hangar, Serial No. 01-076-45-192.

Bids Asked March 12

†Mont., Billings — INSTRUMENT LANDING SYSTEM—Civil Aeronautics Admin., Smith Tower Annex, 2 and Yesler Sts., Seattle 4, Wash., instrument landing sys. at municipal airport, incl. 28x28½ ft. bldg. $15,000.

Bids Asked March 20

Mo., St. Louis—COURT OF HONOR—City, c/o M. M. Kinsey, pres. Bd. Pub. Serv., 304 City Hall, and St. Louis World War II Memorial Com., P. S. Miravalle, genl. chn., City Hall, 12 and Market Sts., Zone 1, Court of Honor, incl. shaft, 37 ft. high grouped in composition with walled in sunken garden, excav., grading, concrete piling, concrete and granite work, cut stone and rubble masonry, waterproofing, landscape work, etc., on Memorial Plaza in blocks bounded by 13, 14, Market and Chestnut Sts. $36,000. Plans deposit $15. E. J. Mackey, Givens Hall, Washington University, Skinner and Forsythe Blvds., St. Louis, Zone 5, archt. W. Crecelius, 301 City Hall, Zone 1, ch. Section of Bridges & Bldgs., engr. CD 1/15—ENR 12/28, under Postwar Projects.

Bids Asked

†Mass., Camp Edwards—FIRE PROTECTION—U. S. Eng., 31 St. James Ave., Boston (selected list bidders), fire protection, No. 19-023-45-Neg-91. $85,000.

†Mass., Fort Devens—FIRE PROTECTION—U. S. Eng., 31 St. James Ave., Boston, fire protection, in various bldgs., No. 19-023-45-NEG 92. $5,000.

N. Y., Albany—LOADING DOCK—Albany Port Dist. Comn., City Hall, loading dock, Contr. 87.

LOW BIDDERS

†Calif., San Bernardino—SPRINKLER SYSTEM—U. S. Eng., 751 S. Figueroa St., Los Angeles, Zone 14, Feb. 19, installing automatic sprinkler sys., in 25 bldgs., at San Bernardino Air Depot, No. 215, from Barnard Engineering Co., 736 E. Washington Blvd., Los Angeles, **$278,314.**

†Calif., Hamilton Field—UTILITIES—U. S. Eng., 74 New Montgomery St., San Francisco, utilities for ATC bldgs., Spec. 1775-10, from W. D. Rapp, 705 Bennett Ave., Santa Rosa, **$113,842.**

†Calif., Oakland—ELECTRICAL DISTRIBUTION SYSTEM—U. S. Eng., 74 New Montgomery St., San Francisco, electrical distr. sys. at Oakland Army Base, Job 1955, from Scott-Buttner Electric Co., 534 20 St., **$91,677.**

†Calif., Victorville — TAXIWAYS, etc. — U. S. Eng., 751 Figueroa St., Los Angeles, Zone 14, Feb. 16, taxiways and addnl. paving at Victorville Army Airfield, No. 221, from Tanner Constr. Co., P.O. Box 1832, Phoenix, Ariz., **$189,783.**

Texas — RURAL ELECTRIFICATION LINES—Guadalupe Valley Cooperative, c/o E. A. Hassman, Gonzales, approx. 70 mi. rural electrification lines, Gonzales Co., from Cisco Electric Co., Conroe, **$49,726.** CD 2/13—ENR 2/15.

Texas—RURAL ELECTRIC LINES—Karnes Electric Cooperative, Karnes City, Feb. 21, 120 mi. rural electric power transmission lines, Karnes Co., from Lowe Electric Co., 2221 Prescott St., Corpus Christi, **$82,899.** CD 2/13—ENR 2/15.

†Tex., Denton—AIRPORT—Civil Aeronautics Admin., P. O. Box 1689, Fort Worth, Feb. 15, airport, incl. 133 acres seeding, 400,000 cu. yd. excav., drainage sys., etc., Prop. 4-45-2967, from Farrell Contg. Co., 1607 Wynne Ave., St. Paul, Minn. **$224,755.** CD 2/5—ENR 2/8.

†Wash., Tacoma—TRACK INSTALLATION—City, A. M. Angove, clk. Bd. Contrs. & Awards, City Hall, Feb. 14, installing 16,648 ft. heavy rails for City Belt Line's new interchange and classifications yards, Wash. 45-300-N, from Woodworth & Co., 1200 E. D. St., **$37,165. FWA.** CD 2/2.

CONTRACTS AWARDED

†Ala., Maxwell Field (sta. Montgomery)—HANGAR—U. S. Eng., Grant St., west of Westwood St., Mobile, hangar, Contr. W-01-076-eng-936, to Bear Lumber Co., 400 Lee St., Montgomery, **$150,093.**

†Calif., Berkeley—GRADING, etc.—U. S. Eng., 74 New Montgomery St., San Francisco, grading, drainage, Spec. 1975, to J. H. Harris, 2657 9 St., **$25,275.**

Calif., Oakland—MOLE ALTERATIONS, etc.—Western Pacific R. R. Co., T. L. Phillips, ch. engr., 526 Mission St., San Francisco, Zone 5, altering, repairing Oakland Mole, to Duncanson-Harrelson Co., 690 Market St., San Francisco. Est. **$60,000.**

†Calif., Treasure Island—TANK RELOCATION—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., tank relocation, NOY 10670, to Haas Constr. Co., 326 Merchants Exchange Bldg., San Francisco. **$48,655.**

★**†Fla., Whiting Field** — RUNWAYS — Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., exten. runways to 7,000 ft., Naval Auxiliary Air Station, NOY 11468, to Smith Engr. & Constr. Co., West Pensacola, **$966,205.**

†Ga., Camp Gordon (br. Augusta)—GRADING RIFLE RANGES—U. S. Eng., Post Office Bldg., Savannah, grading rifle ranges, Contr. W-09-133-eng-565, to E. H. Hines, Greenwood, S. C., approx. **$28,900.**

†Ga., Camp Gordon (br. Augusta)—RANGE—U. S. Eng., Post Office Bldg., Savannah, known distance range, to Knox Bros. Lumber Co., Thomson, **$30,731.**

†Ill., Chicago—PIER FACILITIES—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., facilities, Naval Pier, NOY 11171, to Carroll Constr. Co., 333 N. Michigan Ave., cost-plus-fixed-fee.

†Ind., Crane — STEAM LINE — Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., overhead steam line to mine filling plant, Naval Ammunition Depot, NOY 11709, to T. J. Conner, Inc., 3290 Spring Grove Ave., Cincinnati, O., **$39,777.**

†Kan., Topeka—HANGAR, etc.—U. S. Eng., 10 E. 17 St., Kansas City, Mo., general contract hangar and oil storage bldg., to Bowers & Lundgren, 213 Jackson St., **$183,239.** Bids 1/10. CD 1/9—ENR 1/11.

★**Minnesota**—ELECTRIC POWER LINE—Interstate Power Co., Albert Lea, electric power double-pole line from Montgomery to Albert Lea, single-pole line from Montgomery to New Prague and stub from main high line into Medford, to K. T. McHugh, Waseca. **$500,000.**

†Mo., Camp Crowder—GUARD TOWERS, etc.—U. S. Eng., 1709 Jackson St., Omaha, Neb., guard towers, fencing, etc., remodeling bldgs., Contr. W-25-075-eng-2964, to B. & G. Constr. Co., Carthage, **$25,703.**

†Mo., Springfield—NURSE'S SIGNALLING SYSTEMS—U. S. Eng., 1709 Jackson St., Omaha, Neb., constructing and complete installation nurse's signalling systems, O'Reilly General Hospital, Contr. W-25-075-eng-3124, to Superior Electric Co., 3124 Euclid St., Kansas City, Mo., **$26,170.**

N. J., Bergenfield—ROLLER SKATING RINK—Bergenfield Amusement Corp., c/o H. Lucht, archt., 1700 Teaneck Rd., West Englewood, 1 story, 125x175 ft. roller skating rink, to M. Talini, 17 Cedar St., Tenafly, **$40,000.** CD 2/1—ENR 2/8.

★**†O., Columbus**—SPRINKLER SYSTEM—U. S. Eng. 522 U. S. Post Office and Courthouse Cincinnati installing automatic sprinkler protection at Columbus ASF Depot to Globe Automatic Sprinkler Co., 1900 Euclid Bldg., Cleveland, **$908,904.**

†O., Toledo—SPRINKLER PROTECTION etc—U. S. Eng., 522 U. S. Post Office and Courthouse, Cincinnati, constructing automatic sprinkler protection, Contr. W-33-016-eng-572, to Grinnell Co., Inc., 1294 E. 55 St., Cleveland, est. **$52,841;** smoke jack remodeling, watermains, etc., Contr. W-33-015-eng-571, to G. H. Leach Co., Inc., Bellefontaine, est. **$25,941,** both foregoing at Rossford Ordnance Depot.

†Oklahoma and Texas—SPRINKLER SYSTEMS—U. S. Eng., 231 W. Main St., Denison, Tex., installing automatic sprinkler sys. in Fort Sill, Okla., Camps Fannin, Tyler and Maxey, Tex., Contr. W-41-242-eng-41, to W. H. LaDew, 3010½ Hickory St., Dallas, Tex., est. **$49,482.**

Texas — RURAL ELECTRIFICATION LINES—Lamb Co. Electric Cooperative, Littlefield, 100 mi. rural electrification lines, Lamb Co., to Taylor & Montgomery, Lubbock, **$76,873.** H. N. Roberts, 2415 20 St., Lubbock, engr.

†Tex., Camp Maxey (br. Paris)—TRAINING AIDS—U. S. Eng., 231 N. W. Main St., Denison, army training aids and facilities to H. Newton, Graham. **$109,760.** Est. $125,000. CD 2/19—ENR 2/22.

†Tex., Georgetown—AIRPORT SEWERAGE—U. S. Eng., Fort Sam Houston, storm sewerage sys., drainage, Municipal Airport, Serial No. W-41-154-45-58, to Truehart & Caldwell, 509 Am. Hospital & Life Bldg., San Antonio, **$78,000.**

★**†Tex., Randolph Field**—APRONS, etc.—U. S. Eng., Fort Sam Houston, 240,000 sq. yd. heavy duty concrete aprons, access taxiway with 12½ ft. shoulder, 75 ft. widths asphalt shoulder for two 7,000 ft. runways, widening 4 taxiways 100 ft., exten. parallel runways widening 4 taxiways, relocating, paving roads, constructing control tower, 75 ft. wide taxiways, outside night lighting sys. for airfield areas, grounds development, sodding, etc., foregoing Serial No. W-41-154-45-74, to M. B. Killian & Co., and E. B. Darby Co., P. O. Box 1981, San Antonio, **$2,029,221.** Bids 2/13. CD 2/9—ENR 2/21, under LB.

†Tex., Temple—SPRINKLER SYSTEM—U. S. Eng., Fort Sam Houston, sprinkler sys. in McCloskey Army Hospital Area, Serial No. W-41-154-45-84, to Texas Aut. Sprinkler Co., 2330 Summer St., Dallas, **$32,376.** Bids 2/21.

†Tex., Texarkana—FIRE ALARM AND SPRINKLER SYSTEMS—U. S. Eng., 231 W. Main St., Denison, fire alarm and sprinkler sys. at Ordnance Plant, Ser. 41-242-45-102, to Telkamp Electric Co., 4641 Travis St., Dallas, and Wm. H. LaDew, 3010½ Hickory St., Dallas, **$42,116.**

Washington—RURAL ELECTRIC LINES—Benton Rural Electric Assn., Prosser, 42.1 mi. rural electric lines, Benton Co., to Electric Smith, 121 E. Sprague Ave., Spokane, **$45,874.** W. S. McCrea, Jr., Perkins Bldg., Tacoma, engr.

†Wash., Quillayute—AIR STATION HOUSING—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., homoja housing development, Naval Auxiliary Air Station, NOY 11118, to Chisholm & Elford, P. O. Box 54, Bellingham, **$72,550.**

Wash., Seattle—PIERS—Todd Pacific Shipyards, 3400 11 Ave. S.W., Zone 4, 40x507 ft., and 33x160 ft., piling, timber piers, to General Constr. Co., 3840 Iowa St., Zone 6. Est. **$150,000.**

B. C., Abbotsford — AERODROME — Dpt. Transport, Ottawa, Ont., addnl. aerodrome development, to Columbia Bitulithic Co., Ltd., Granville Island, Vancouver. Est. **$295,000.** CD 1/4—ENR 1/11.

Man., Winnipeg—TURBINES—Municipality, supplying 2 hydraulic turbines for Slave Falls plant of municipally-owned hydro, to Dominion Engineering Co. Ltd., 7 Notre Dame St., Lachine, Que., **$273,500.**

Proposal Advertisment see p. 23